Arkansas Department ACE of Career Education

Career and Technical Education Program Operational Guides

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Statement of Assurance

All vocational opportunities are offered without regard to race, color, national origin, sex, handicap, or age. The following civil rights laws protect individuals from discrimination in programs or activities receiving federal financial assistance:

       Title IV of the Civil Rights Act of 1964
       Title IX of the Education Amendments of 1972
       Section 504 of the Rehabilitation Act of 1973
       Age Discrimination Act of 1975

RELATED LINK: Go to the Department of Labor for assistance with specific laws and regulations, http://www.dol.gov/dol/compliance/compliance-majorlaw.htm.

Summary of Dates/Forms Associated with Instructional Programs		
Date	**Form # and Web Site Address**	**Name of Form**
Friday after Labor Day	(**http://ace.arkansas.gov/CareerandTechEducation/TeacherInformationSystem.htm**)	Computer submission of **Teacher Information**
October 1		Notification by letter of schools using concurrent credit to meet standards
October 1	**WE-92** (**http://ace.arkansas.gov /CTESCTENewandExpandedPrograms.htm**)	C & T New Program Start-up Proposals
December 15	**WE-4** (**http://ace.arkansas.gov /CTESCTENewandExpandedPrograms.htm**)	Reimbursement for C & T New Program Equipment
June 30		STRIVE End of Year Report
2 weeks prior to beginning of class	**WE-6** (**http://ace.arkansas.gov /CTESCTEReporting%20Forms.htm**)	Application for Adult Skill Training Class (no classes will be approved after May 1)
No later than 2 weeks after completion of class	**WE-PD** (**http://ace.arkansas.gov /CTESCTEReporting%20Forms.htm**)	Adult Skill Training Class Enrollment Report (all reimbursement requests must be received by May 30)

Program Approval Process

Annual Program Approval (Teacher Information System)

If a program was **conditionally approved** during the previous year and one of the following actions applies the following year, then the district will receive the program status indicated.

ACTION	STATUS TO RECEIVE
Critical Elements received from previous Technical Assistance visit & improvement plan not approved (see list below)	Disapproval
No CTSO previous year	Conditional Approval
No program of study	Conditional Approval
No required foundations (reviewed by appropriate program area)	Conditional Approval
Testing data reflects core courses were NOT tested	Conditional Approval
Meets all ACE standards	**FULL APPROVAL**

If a program had **full approval** during the previous year and one of the following actions applies the following year, then the district will receive the program status indicated.

ACTION	STATUS TO RECEIVE
Problems are corrected	**FULL APPROVAL**
Problems not corrected	Disapproval
Critical Elements received from previous Technical Assistance visit & improvement plan not approved (see list below)	Disapproval

Onsite Compliance Review (Technical Assistance Visit)

Onsite technical reviews are conducted on a five-year rotation. All information regarding these TA visits can be found on the ACE website (http:ace.arkansas.gov) under Career & Technical Education, Technical Assistance.

2014-2015
Start-up Equipment Computer Standards

Level I standards:

All areas will utilize Level I standards unless noted by program area that Level II standards are needed. Arkansas Department of Career Education (ACE) will follow the recommended guidelines issued by PARCC regarding Level I computer and tablet purchases. A link to these guidelines follows:

http://parcconline.org/sites/parcc/files/Technology%20Guidelines%20for%20PARCC%20Assessments%20v%204_2%20May%202014.pdf

Level II Standards:

Windows
- Intel® Pentium® 4 or AMD Athlon® 64 processor with 64-bit support; Intel Core™2 Duo or AMD Phenom® II processor required for Premiere Pro, After Effects, and Encore; Intel Core i7 processor required for SpeedGrade
- Windows 7 with Service Pack 1; Windows 7 with Service Pack 1 (64 bit)
- 2GB of RAM (4GB recommended) for 32 bit; 4GB of RAM (8GB recommended) for 64 bit
- 30GB hard-disk
- Additional disk space required for disk cache, preview files, and other working files; 10GB recommended
- 1280×900 display with 16-bit color and 512MB of VRAM
- OpenGL 2.0-capable system
- Sound card compatible with ASIO protocol or Microsoft Windows Driver Model
- Internal or external DVD-ROM drive compatible with dual-layer DVDs (DVD+-R burner for burning DVDs; Blu-ray burner for creating Blu-ray Disc media)
- Java™ Runtime Environment 1.6 (included)

Mac OS
- Multicore Intel processor with 64-bit support
- Mac OS X v10.6.8 or v10.7
- 4GB of RAM (8GB recommended)
- 30GB hard-disk
- Additional disk space required for disk cache, preview files, and other working files; 10GB recommended
- 1280×900 display with 16-bit color and 512MB of VRAM
- OpenGL 2.0-capable system
- DVD-ROM drive compatible with dual-layer DVDs (SuperDrive for burning DVDs; Blu-ray burner for creating Blu-ray Disc media)
- Java™ Runtime Environment 1.6

Minimum Facility Requirements

http://arkansasfacilities.arkansas.gov/

SAFETY

Space and special equipment for CTE laboratories are varied and unique. Safety should be of the utmost consideration at all times in planning a facility and locating equipment. Sufficient electrical power should be included to support major pieces of equipment in the lab, including a sufficient number of electrical outlets. OSHA standards shall be followed where applicable.

A student wash up area shall be provided. Proper exhaust and filtration of harmful fumes/dust shall be provided. The laboratory shall be zoned and color coded identifying specific work areas and pedestrian walkways. Large open areas for instructional activities shall be provided.

Caution must be exercised and enrollment must be limited so that an overcrowded situation does not occur. For the specifications for the laboratory areas, please see the Arkansas Facilities website listed on the previous page.

Foundation and Support Courses for All CTE Programs of Study

355910   **Input Technologies**
1 Semester   Grade Level: 5 (NO CREDIT)
Input Technologies is a course designed to provide students with the necessary foundation skills to be successful in a technology enriched world. The minimum required amount of time to teach this course is forty minutes per week or its equivalent during the school year.

366910   **Technology Communications**
1 Semester   Grade Level: 6 (NO CREDIT)
Technology Communications is a course that continues to develop the technology skills learned in the 5th grade. Word processing skills will be expanded as well as the introduction to basic spreadsheet functions and manipulation. The minimum required amount of time to teach this course is forty minutes per week or its equivalent during the school year.

378910   **Information and Communications Technology**
1 Semester   Grade Levels: 7-8 (NO CREDIT)
This course is designed to prepare students for the transition into 9th grade. This course is the culmination of skills mastered beginning in the 5th grade, while adding database and electronic presentation skills. The minimum required amount of time to teach this course is sixty clock hours or one semester.

378920   **Introduction to Business Communications and Technology**
1 Semester   Grade Levels: 7-8 (NO CREDIT)
Introduction to Business Communications and Technology is the first semester of a two-semester foundation sequence designed to provide students with the necessary foundation skills to be successful in a technology enriched world. Word processing skills will be expanded as well as the introduction to basic spreadsheet functions and manipulation. The minimum required amount of time to teach this course is sixty clock hours or one semester.

399040   **Computer Technology: Introduction**
1 Semester   Grade Levels: 7-8 (NO CREDIT)
Computer Technology: Introduction is a one-semester course designed to prepare seventh- and eighth-grade students with an introduction to computers and business applications that are necessary to live and work in a technological society. Emphasis is given to data entry, computer concepts and operations, programming and design, computer software, implications of technology in society, and ethics. The course is designed to provide students with an understanding of the business, industrial, and scientific areas in which the computer is used.

399050   **Keyboarding**
1 Semester   Grade Levels: 7-8 (NO CREDIT)
Keyboarding is a one-semester course designed to help students develop speed and accuracy by learning the touch operation of alphanumeric/keyboard characters. Emphasis is placed on the following: mastery of the keyboard with desirable keyboarding techniques; development of speed and accuracy; basic problem-solving applications of centering and arranging reports, letters, and tables; proofreading; formatting; and proper care of the equipment. Keyboarding is a foundation for developing entry-level skills for business careers.

399100   **Career Orientation**
1 Semester   Grade Levels: 7-8 (8th grade recommended) (NO CREDIT)
This foundation course for all programs of study uses hands-on activities and research to provide an opportunity for exploring careers in the 16 career clusters.   Career preparation and development begins with the establishment of individual career and education plans. **(This course is planned to transition out, replacing it with Career Development.)**

399280   **Career Development**
1 Semester   Grade Levels: 7 or 8 (8th grade recommended) (NO CREDIT)
This CTE foundation course is a one or two semester class for grades 7-8 designed to teach career development through research and understanding of self and the world of work for college and career readiness. Career research and decision-making with education and training plans for exploration and development will be core standards. Students will be knowledgeable of career options, and the personal skills, aptitudes, and employer expectations of future careers of choice. Students will identify personal traits and characteristics for a better understanding of self in their pursuit of finding a meaningful, fulfilling and rewarding career. Through better recognition and understanding of personal interests, values, aptitudes and abilities students can assess how they relate to the world of work in order to acquire the skills necessary for appropriate placement in the workforce. In addition, students will demonstrate the use of technology to gather information about careers and demonstrate an understanding of the ways in which work, family, and leisure roles are interrelated. Students shall develop a career focus with viable expectations for success based upon careful research, consistent planning and employment preparation.

399170   ACE-Approved Keystone
1 Semester Grade Levels: 7-8 (NO CREDIT)
This program is designed to help students make smooth transitions to the high school facility. It is customized by faculty members to meet the needs of individual project sites. The purpose of the program is to decrease the number of disciplinary referrals, lower the drop-out rate, raise test scores, increase student involvement in school activities, and promote sound career development planning. Although keystone programs originated as orientation programs for schools implementing academies, they may be adapted for use in regular school environments.
(Local frameworks must be sent to the ACE Curriculum Office for program approval.)

493850   Keystone
Credit: .5   Grade Levels: 9-10
The Keystone course is designed to help ninth and tenth graders successfully navigate high school. Students will receive instruction on study skills, self-awareness, and goal setting strategies. This transition course will create a sense of belonging among students by having them become productive citizens of their school and community. Students will receive guidance in investigating their own interests and aptitudes in relation to possible *Career Pathways* and life-long learning and will begin developing a flexible education plan for high school. Keystone will help students to develop *Personal Success* through 21st century skills, such as, communication, teamwork, and creativity. This will be done through planned activities that encourage students to push themselves beyond their comfort zone (paradigm). Keystone will help students realize relevancy in *Academic* and *Life Skills* through the activities and discussions within the classroom. Through guidance and self-evaluation, along with the principles of The 7 Habits of Highly Effective Teens, students will put *Keystone in Action*.

Elective Courses for All CTE Programs of Study

493860   Internship
Credit: 1   Grade Levels: 11-12
This is a practical and supervised job experience designed to assist students to successfully transition from school-to-work or successfully continue their education in a chosen program of study or career focus area. Internships are individualized and competency-based. It focuses on the SCANS competencies with emphasis on problem solving, teamwork, communication skills, applied math, literacy, and technology. It counts as one unit of credit toward completer status in any of the career and technical programs of study. Interns may receive 1 unit of credit for completing a minimum of 180 hours of internship and 18 hours of coordinator contact. Interns shall be limited to 4 credits for completing at least 720 hours of internship credit and 72 hours of coordinator contact within a consecutive two-year period.

493880   College and Career Readiness
Credit: .5   Grade Levels: 9-12
College and Career Readiness is a one-semester (.5 credit) course that can count toward completer status for any Career and Technical Education Program of Study. It is designed to provide the student with the necessary skills to evaluate fundamental employment ready skills and what they need from education to be prepared to refine their choices through a decision-making process and master the skills most needed by 21st century employers. This course is recommended for the first semester of the senior year to allow counselors working with seniors to prepare for graduation and college preparation. Students will assess labor market information, personal academic and career ready potential, and make application to postsecondary institutions. This course will use the Career Ready 101 curriculum to prepare students to take the ACT WorkKeys assessments to earn the Arkansas Career Readiness Certificate. **(493880 College and Career Readiness and 493900 Career Readiness replaces Workplace Readiness.)**

493900   Career Readiness
Credit: .5   Grade Levels: 9-12
Career Readiness is a one-semester (.5 credit) course that can count toward completer status for any Career and Technical Education Program of Study. It is designed to provide the student with the necessary skills to evaluate who they are, what they need in a career, research postsecondary options and career information. The major goal of Career Readiness is to engage students to develop characteristics and skills employers most desire. Students will evaluate personal traits for a better understanding of self in their pursuit of finding a meaningful, fulfilling and rewarding career then compare their traits to the characteristics employers expect for the purpose of identifying and developing the lacking skills. This course uses the Career Ready 101 curriculum to teach the 21st Century SCANS skills but does not include the WorkKeys skills from College and Career Readiness. This course supplements 493880.

493900   Career Ready 101 Online
Credit: .5   Grade Levels: 9-12
Career Ready 101 Online is a (.5 credit) course option to 493880 and 493900 that can count as an elective to complete any Career and Technical Education Program of Study. The major goal of Career Ready 101 Online is to engage students in digital learning to meet ACT 1280 and to prepare for postsecondary education. This course contains the CR101 curriculum WorkKeys Skills--Locating Information, Applied Math and Reading for Information found in the College and Career Readiness Course (493880). It also contains key Career Skills found in the Career Readiness Course (493900). It is designed to provide the student with the necessary skills to evaluate who they are, what they need in a career, and research postsecondary options and career information. This course is an alternative option for 493880 and 493900 and should not be taken in conjunction with either of the two since it is duplicative in the Career Ready 101 curriculum in many areas. CR101 Online is available through Virtual Arkansas.

493890   ACE-Approved Career Cluster Senior Seminar
Credit: .5   Grade Levels: 12
This class will enhance existing programs of study by offering students opportunities for program of study technical research, academic integration, business and industry interaction, oral presentation, and demonstration of learned skills. This class should allow students to synthesize learned information through the use of career scenarios.   It focuses on the SCANS competencies with emphasis on problem solving, teamwork, communication skills, applied math, literacy, and technology. This class may be offered for one or two semesters with .5 credit per semester.
(This course does not count toward CTE program of study completer status. Local frameworks must be sent to the ACE Curriculum Office for program approval.)
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Operational Guide for
Agricultural Science Education

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: AGRICULTURE, FOOD & NATURAL RESOURCES	
Pathway	**Program of Study**
Agribusiness Systems	Agribusiness Systems
Animal Systems	Animal Systems
Food Products & Processing Systems	Food Products
Natural Resource & Environmental Systems	Natural Resources/Environmental Service Systems
Power, Structural & Technical Systems	Power, Structural & Technical Systems - Agri Mechanics
Plant Systems	Plant Systems

CAREER CLUSTER: AGRICULTURE, FOOD & NATURAL RESOURCES

AGRICULTURAL SCIENCE & TECHNOLOGY

Program Description

> Agricultural science and technology education is an organized educational program designed to provide career exploration and technical preparation for students who are preparing for career success in the Agriculture, Food & Natural Resources Career Cluster. The knowledge and performance skills required for successful achievements and/or advancement in agricultural occupations constitute the central focus of the program. This program seeks to broaden traditional agricultural education to include agricultural literacy, reinforcement of applied instruction, agricultural business and industry needs, and increase preparation for further education.

Occupational Program

> The Agriculture, Food & Natural Resources Career Cluster offers sequential career focus programs of study in pathways.

> The Agriculture Industry has expanded into a large field of related occupations. Farming is no longer agriculture's primary occupation. Therefore, it is necessary to provide educational opportunities to students within this growing occupational field. Today's agricultural workplace demands a labor force that possesses not only advanced technical skills, but strong academic and interpersonal skills. Each local school district conducting Agricultural Education Programs should plan a program which will include those courses that most nearly meet the needs of students in the community. It is recommended that courses be offered in various careers in agriculture and to develop skills within those careers. Each teacher unit shall offer a minimum of four (4) semester courses per year from the selected programs of studies other than the Power, Structural & Technical (Agri Mechanics) Program of Study. Each program should offer at least two programs of study. The only exception is if horticulture is the only program of study.

Career and Technical Student Organization (CTSO)

> FFA shall be an integral part of the agriculture education instructional program and shall follow the applicable guidelines, goals, objectives, and participate in activities of the state and National FFA Organization.

> All students enrolled are encouraged to become members of the FFA and take advantage of the leadership, citizenship, and personal development training and experience offered through participation in the FFA program. Each approved program of Agricultural Education shall have an active FFA Chapter that provides leadership development opportunities for all its members.

Agricultural Education teachers shall serve as FFA Chapter Advisors. In multiple-teacher departments, each teacher shall share the FFA Chapter responsibilities.

Pathways and Programs of Study by Career Cluster

Agriculture, Food & Natural Resources Cluster

The production, processing, marketing, distribution, financing, and development of agricultural commodities and resources, including food, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources.

AGRICULTURE PREREQUISITES	
COURSES	**PRE-REQUISITE COURSE(S)**
All courses/pathways (except Survey of Agricultural Systems and Intro to World Ag)	Survey of Agriculture Systems or CASE: AFNR
Animal Science II	Animal Science I
Plant Science II	Plant Science I

Agribusiness Systems Pathway
Agribusiness Systems Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491150	Survey of Agricultural Systems or CASE: AFNR	1			X	X	X	X
491030	Agricultural Business	.5				X	X	X
491060	Agricultural Marketing	.5				X	X	X

Power, Structural & Technical Systems Pathway
Agricultural Power, Structural &Technical Systems Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491150	Survey of Agricultural Systems or CASE: AFNR	1			X	X	X	X
491390	Agriculture Mechanics	1				X	X	X

Animal Systems Pathway
Animal Systems Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491150	Survey of Agricultural Systems or CASE: AFNR	1			X	X	X	X
491180	Animal Science I	.5				X	X	X
491200	Animal Science II	.5				X	X	X
491160	CASE: Animal Science (can be substituted for Animal Science I and Animal Science II)	1				X	X	X

Food Products & Processing Systems Pathway
Food Products & Processing Systems Program of Study
(ACE approval is necessary before implementing the courses in this pathway.)

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491150	Survey of Agricultural Systems or CASE: AFNR	1			X	X	X	X
491100	Food Products and Processing I	1				X	X	X
491480	CASE: Food Science (can be substituted for Food Products and Processing I)	1				X	X	X
491110	Food Products and Processing II	1					X	X
491120	Food Products and Processing Capstone	1						X

or

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491150	Survey of Agricultural Systems or CASE: AFNR	1			X	X	X	X
491320	Meat Processing I	1				X	X	X
491070	Meat Processing II	1					X	X
491080	Meat Processing Capstone	1						X

Natural Resource & Environmental Systems Pathway
Natural Resource & Environmental Systems Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491150	Survey of Agricultural Systems or CASE: AFNR	1			X	X	X	X
491310	Managing Our Natural Resources	.5				X	X	X
491230	Environmental Resources or Forestry 491260 can be substituted with ACE approval	.5				X	X	X
491170	CASE: Natural Resources (can be substituted for Managing Our Natural Resources and Environmental Resources)	1				X	X	X

Plant Systems Pathway
Plant Systems Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491150	Survey of Agricultural Systems or CASE: AFNR	1			X	X	X	X
491340	Plant Science I	.5				X	X	X
491210	Plant Science II	.5				X	X	X
491170	CASE: Plant Science (can be substituted for Plant Science I and Plant Science II)	1				X	X	X

AGRICULTURE SCIENCE & TECHNOLOGY COURSES:

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
491010	Advanced Animal Science	.5					X	X
491020	Agricultural Apprenticeship/Work-Based Learning	1					X	X
491030	Agricultural Business	.5				X	X	X
491040	Agricultural Electricity	.5				X	X	X
491060	Agricultural Marketing	.5				X	X	X
491380	Agricultural Metals	1				X	X	X
491390	Agricultural Mechanics	1				X	X	X
491400	Agricultural Power Systems	1				X	X	X
491410	Agricultural Structures	1				X	X	X
491180	Animal Science I	.5				X	X	X
491200	Animal Science II	.5				X	X	X
491190	Aquaculture	.5				X	X	X
491430	Beef Science	.5					X	X
491230	Environmental Resources	.5				X	X	X
491420	Equine Science	.5					X	X
491240	Floriculture	.5				X	X	X
491250	Food Science Technology	.5				X	X	X
491260	Forestry	.5				X	X	X
491270	Greenhouse Management	.5				X	X	X
491300	Leadership & Communications	.5				X	X	X
491310	Managing Our Natural Resources	.5				X	X	X
491330	Nursery/Landscape	.5				X	X	X
491340	Plant Science I	.5				X	X	X
491210	Plant Science II	.5				X	X	X
491440	Poultry Science	.5					X	X
491450	Small Animal Science	.5					X	X
491350	Small Engine Technology	.5				X	X	X
491150	Survey of Agricultural Systems	1			X	X	X	X
491360	Turf Grass Management	.5				X	X	X
491460	Veterinary Science	1					X	X

Course Code	ACE Prior Approval	Units of Credit	7th	8th	9th	10th	11th	12th
District must seek ACE prior approval before implementation								
491370	ACE-Approved Agriculture	1				X	X	X
590050	ACE Approved Agriculture Education	1				X	X	X
491140	CASE: AFNR	1			X	X	X	X
491160	CASE: Animal Science	1				X	X	X
491490	CASE: Biotechnology	1				X	X	X
491480	CASE: Food Science	1				X	X	X
491470	CASE: Natural Resources	1				X	X	X
491170	CASE: Plant Science	1				X	X	X
491100	Food Products and Processing I	1				X	X	X
491110	Food Products and Processing II	1					X	X
491120	Food Products and Processing	1						X

Course Code	ACE Prior Approval	Units of Credit	7th	8th	9th	10th	11th	12th
	Capstone							
491320	Meat Processing I	1				X	X	X
491070	Meat Processing II	1					X	X
491080	Meat Processing Capstone	1						X

Course Code	Middle School Courses	Units of Credit	7th	8th	9th	10th	11th	12th
399030	Intro to World Agriculture Science		X	X				

CLUSTER: AGRICULTURE, FOOD & NATURAL RESOURCES (all pathways)

491370   ACE-Approved Agriculture
Credit: 1   Grade Levels: 10-12
This is an individually approved course in agriculture submitted by the district.

590050   ACE-Approved Agriculture
Credit: 1   Grade Levels: 10-12
This is an individually approved course in agriculture submitted by the district.

491010   Advanced Animal Science
Credit: .5   Grade Levels: 10-12
This course is designed at the local level for specialized instruction as determined by the local advisory committee and administration in a specific area of animal science. Pre-requisites would be animal science.

491020   Agricultural Apprenticeship/Work-Based Learning
Credit: 1   Grade Levels: 11-12
This course provides for the work-based component of a supervised agriculture experience program with an agriculture employer. It provides the experiential learning concepts that are needed for successful employment.

491030   Agricultural Business
Credit: .5   Grade Levels: 10-12
This course provides students with a basis for making effective decisions, setting goals, assessing and solving problems, evaluating the management of resources, and gaining skills useful in everyday life. FFA and SAEs will be covered as well.

491040   Agricultural Electricity
Credit: .5   Grade Levels: 10-12
Students will cover electrical terms, careers, sources, tools, and practical wiring. Students will learn to read plans and wire according to plan. They will use hands-on activities and safety will be stressed.

491060   Agricultural Marketing
Credit: .5   Grade Levels: 10-12
This course will cover all aspects of marketing agricultural products and services from wholesale to retail, including futures markets, international marketing, and the role of agricultural products and services in the U.S. and world economies.

491390   Agriculture Mechanics
Credit: 1   Grade Levels: 10-12
This course connects scientific principles with mechanical skills. This course will enhance the student's understanding of traditional areas of agriculture mechanics and will emphasize agricultural technology, including such topics as electricity, internal combustion engines, metal technology, construction, and the development, role, and scope of mechanical technology in agriculture.

491380   Agricultural Metals
Credit: 1   Grade Levels: 10-12
This course covers safety, technical information, tool fitting, sheet metal, hot and cold metal work, as well as an introduction to oxyacetylene welding and cutting and arc welding. It will also cover cold metal, hot metal, fabrication concepts, reading and implementing blueprints as they relate to metal work, arc welding, gas welding, MIG welding, TIG welding, plasma cutting, and careers related to metal work. Safety practices and performance skills will be emphasized in each area.

491400   Agriculture Power Systems
Credit: 1   Grade Levels: 10-12
This course covers the basic principles of agricultural power (electrical and internal combustion), maintenance and repair of equipment, career opportunities, and safety. It will focus on the technical areas of maintenance and repair of small engines, control and installation of electrical power, electronics, and repair and maintenance of agricultural machinery.

491410   Agriculture Structural Systems
Credit: 1   Grade Levels: 10-12
Students will be introduced to basic practices used in farm building and construction of facilities for the farm. A more in-depth look will be given to the technical areas of the agriculture structural industry. Topics will include FFA, SAEs, safety, planning, tools, basic construction, surveying, concrete and masonry structures, basic carpentry, plumbing, electricity, metal fabrication, and painting and finishing.

491180   Animal Science I
Credit: .5   Grade Levels: 10-12
The course is structured to enable all students to have an overview of the Animal Industry. Topics covered in Animal Science I include the Animal Industry, Animal Handling and Safety, Animal Anatomy/Physiology, and Animal Nutrition. Opportunities are provided for students to participate in FFA and supervised experience activities.

491200   Animal Science II
Credit: .5   Grade Levels: 10-12
This course is structured to enable all students to have an overview of the Animal Industry. Topics covered in Animal Science II include Animal Reproduction, Genetics, Animal Health, Animal Products, and Marketing. Opportunities are provided for students to participate in FFA and supervised experience activities.

491190   Aquaculture
Credit: .5   Grade Levels: 10-12
This course is the science of water farming. It includes the production and marketing of aquatic animals and plants.

491430   Beef Science
Credit: .5   Grade Levels: 11-12
This course is designed to provide an advanced study in the science and application of beef production.

491490   Curriculum for Agricultural Science Education (CASE): Animal and Plant Biotechnology
Credit: 1   Grade Levels: 10-12
This is a specialization course in the CASE Program of Study, provides students with experiences in industry appropriate applications of biotechnology related to plant and animal agriculture. Students will complete hands-on activities, projects, and problems designed to build content knowledge and technical skills in the field of biotechnology. (Must **have ACE-approval and attend training prior to implementation.)**

491480   Curriculum for Agricultural Science Education (CASE): Food Science and Safety
Credit: 1   Grade Levels: 10-12
This is a specialization course in the CASE Program of Study. Students will complete hands-on activities, projects, and problems that simulate actual concepts and situations found in the food science and safety industry, allowing students to build content knowledge and technical skills. Students will investigate areas of food science including food safety, food chemistry, food processing, food product development, and marketing. (Must **have ACE-approval and attend training prior to implementation.)**

491470   Curriculum for Agricultural Science Education (CASE): Natural Resources & Ecology
Credit: 1   Grade Levels: 10-12
This course is a foundation course within the CASE sequence of courses. The course provides students a variety of experiences that in the fields of natural resources and ecology. (**Must have ACE-approval and attend training prior to implementation.)**

491140   Curriculum for Agricultural Science Education (CASE): Introduction to Agriculture, Food & Natural Resources (AFNR)
Credit: 1   Grade Levels: 9-12
This course introduces students to the range of agricultural opportunities and the pathways of study they may pursue. Science, mathematics, reading, and writing components are woven in the context of agriculture and students will use the introductory skills and knowledge developed in this course throughout the CASE™ curriculum. (Must **have ACE-approval and attend training prior to implementation.)**

491160   Curriculum for Agricultural Science Education (CASE): Principles of Agricultural Science—Animal
Credit: 1   Grade Levels: 10-12
This is a foundation-level course designed to engage students in hands-on laboratories and activities to explore the world of animal agriculture. (**Must have ACE-approval and attend training prior to implementation.)**

491170   Curriculum for Agricultural Science Education (CASE): Principles of Agricultural Science—Plant
Credit: 1   Grade Levels: 10-12
This is a foundation-level course that will teach students about the form and function of plant systems. Students are immersed in inquiry-based exercises filled with activities, projects, and problems to teach them plant concepts through laboratory and practical experiences. Student experiences will include the study of plant anatomy and physiology, classification, and the fundamentals of production and harvesting. (Must **have ACE-approval and attend training prior to implementation.)**

491230   Environmental Resources: Soil & Water
Credit: .5   Grade Levels: 10-12
This course focuses on environmental concerns related to soil, air, and water. Emphasis is placed on soil and water in relation to agricultural processes. Students will also investigate ways to conserve soil and water and prevent contamination.

491420   Equine Science
Credit: .5   Grade Levels: 11-12
Equine Science will introduce students to a broad spectrum of topics in Equine Science and establish a solid foundation of general horse knowledge. The course will begin with discussions of the development, domestication, and use of the horse; as well as the economic impact and future trends of the horse industry.

491240   Floriculture
Credit: .5   Grade Levels: 10-12
This course covers the principles of design, merchandising, careers, selection, storage, supplies, management practices, ownership, and employment in the floriculture industry.

491100   Food Products & Processing I
Credit: 1   Grade Levels: 10-12
This course examines the food industry in production, manufacturing/processing, distribution, and marketing. It also explores careers, consumer consumption, food safety, global commodities, and food companies. **(Must have ACE-approval prior to implementation.)**

491110   Food Products & Processing II
Credit: 1   Grade Levels: 11-12
This course examines the food industry in production, manufacturing/processing, distribution, and marketing. It also explores careers, consumer consumption, food safety, global commodities, and food companies. **(Must have ACE-approval prior to implementation.)**

491120   Food Products & Processing Capstone
Credit: 1   Grade Levels: 12
This course examines the food industry in production, manufacturing/processing, distribution, and marketing. It also explores careers, consumer consumption, food safety, global commodities, and food companies. **(Must have ACE-approval prior to implementation.)**

491250   Food Science Technology
Credit: 1   Grade Levels: 10-12
This course examines the food industry in production, manufacturing/processing, distribution, and marketing. It also explores careers, consumer consumption, food safety, global commodities, and food companies.

491260   Forestry
Credit: .5   Grade Levels: 10-12
This course provides an overview of the forest industry and its importance to the economy of the nation. Tree identification, management practices, harvesting and marketing processes, and business applications are major topics. GPS and GIS are included.

491270   Greenhouse Management
Credit: .5   Grade Levels: 10-12
This course covers greenhouse management practices, including structural considerations, plant propagation, pesticide use, and product marketing. The student will also receive ample hands-on practice.

491300   Leadership & Communications
Credit: .5   Grade Levels: 10-12
Public speaking, parliamentary procedure, organization, delegation, oral communication, conflict resolution, business etiquette, and community service are major topics to assist students in development of their leadership skills for the future.

491310   Managing Our Natural Resources
Credit: .5   Grade Levels: 10-12
Students will explore natural resources (soil, water, air, forests, energy, minerals and metals, and wildlife) and develop the knowledge and skills to use them wisely. Other issues include outdoor recreation, careers, and the environment.

491320   Meat Processing I
Credit: 1   Grade Levels: 10-12
This laboratory-specific course is designed to develop skill in the slaughter and processing of animals. The course emphasizes safety, sanitation, equipment care and maintenance, slaughter procedures, wholesale and retail meat fabrication, meat quality including quality and yield grade, preparation, and merchandising trends. Instruction will include career opportunities, leadership activities, aspects of HASSIP, and other practices related to the meat-packing industry. This course is approved for the Centerpoint School District only. **Other districts must request approval prior to implementation.**

491070   Meat Processing II
Credit: 1   Grade Levels: 11-12
This laboratory-specific course is designed to develop skill in the slaughter and processing of animals. The course emphasizes safety, sanitation, equipment care and maintenance, slaughter procedures, wholesale and retail meat fabrication, meat quality including quality and yield grade, preparation, and merchandising trends. Instruction will include career opportunities, leadership activities, aspects of HASSIP, and other practices related to the meat-packing industry. **(This course is currently only approved for the Centerpoint School District and other districts must request approval prior to implementation.)**

491080   Meat Processing Capstone
Credit: 1   Grade Levels: 12
This laboratory-specific course is designed to develop skill in the slaughter and processing of animals. The course emphasizes safety, sanitation, equipment care and maintenance, slaughter procedures, wholesale and retail meat fabrication, meat quality including quality and yield grade, preparation, and merchandising trends. Instruction will include career opportunities, leadership activities, aspects of HASSIP, and other practices related to the meat-packing industry. **(This course is currently only approved for the Centerpoint School District and other districts must request approval prior to implementation.)**

491330   Nursery/Landscape
Credit: .5   Grade Levels: 10-12
This course covers the production of plants, shrubs, and ornamental trees for transplanting to landscape designs. Propagation, designing plans, installation, maintenance, transportation, and careers are included in the curriculum.

491340   Plant Science I
Credit: .5   Grade Levels: 10-12
This course covers the relationship between plants and people, plant morphology and physiology, plant production, the environment, soil, and other related areas.

491210   Plant Science II
Credit: .5   Grade Levels: 10-12
This course covers the relationship between plants and people, plant growth, plant diseases and insects, plant genetics, plant propagation, and other related areas.

491440   Poultry Science
Credit: .5   Grade Levels: 11-12
This course focuses on the production and management of poultry and the production and handling of poultry products.

491450   Small Animal Science
Credit: .5   Grade Levels: 11-12
This course is designed to provide students with skills and concepts involved with the care and management of companion animals.

491350   Small Engine Technology
Credit: .5   Grade Levels: 10-12
This course examines the uses of small engines in all areas of agriculture. Selection, maintenance and repair, careers, and employability are major topics.

491150   Survey of Agricultural Systems
Credit: 1   Grade Levels: 9-12
This is a foundation course for all agriculture programs of study. Topics covered include general agriculture, FFA, leadership, record keeping, Supervised Agricultural Experiences (SAEs), animal science, plant science, soil science, and agricultural mechanics.

491360   Turf Grass Management
Credit: .5   Grade Levels: 10-12
This course covers all aspects of turf grass management, including lawn care, turf production, golf course management, sports turf, irrigation, equipment, maintenance, and human relations.

491460   Veterinary Science
Credit: 1   Grade Levels: 11-12
This course will provide the student with a sound platform to master the knowledge and skills necessary to become a veterinary assistant. It will also prepare the student to pursue a rewarding career as part of the professional veterinarian team. It will also equip the next generation of veterinarians and veterinarian assistants with the new technological tools that reinforce our industries expectations. Finally, it provides academic knowledge, higher order reasoning and problem solving skills, work attitudes, general employability skills, technical skills and occupational skills.

Middle School Courses

399030   Intro to World Agriculture Science
1 Semester   Grade Levels: 7-8 (NO CREDIT)
This is a foundation course for agriculture courses. Basic agriculture concepts are introduced, and students explore careers in the agriculture industry. Students will also be introduced to the FFA, leadership, and Supervised Agricultural Experiences.

AGRICULTURE SCIENCE AND TECHNOLOGY

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

For all CASE programs, the minimum equipment list can be located at
http://www.case4learning.org/index.php/usingcasepurchasemanuals

Cluster: Agriculture, Food & Natural Resources
All Pathways and Programs of Study shall have the following equipment:

Item Name	Number per Dept.	Specification/ Description
Student Computer System	5	See ACE Technology Standards
Emergency Shower	1	
Eye Wash Station	1	
Approved Metal Storage Cabinet for flammable, caustic, and/or toxic materials	1	
Safety Glasses	20	
Fire Blanket	1	
First Aid Kit	1	
Eye protection cabinet	1	

Cluster: Agriculture, Food & Natural Resources
Pathway: Agribusiness Systems
Program of Study: Agribusiness Systems

Item Name	Number per Dept.	Specification/ Description
Student Computer System	20	See ACE Technology Standards
Printer	1	Laser Printer (Color)

Cluster: Agriculture, Food & Natural Resources
Pathway: Plant Systems
Program of Study: Plant Systems

Item Name	Number per Dept.	Specification/ Description
Greenhouse	1	Minimum of 1,800 sq.ft. w/environmental system
Potting Tables	1	18 sq. ft. minimum work space
Table system for greenhouse	1	400 sq. ft. minimum
Microscope, compound	1	
Teacher Microscope	1	digital
Student Microscopes	10	10x, 40x objectives
Student Calculators	20	
Soil test kit	1	See Approved Kit List
Water test kit	1	Nitrate, phosphate, & alkaline
Horticulture tool kit	1	See Approved Kit List
DNA Kit	1	See Approved Kit List
Tiller	1	5 hp
Mower	1	
Grass trimmer	1	

Item Name	Number per Dept.	Specification/ Description
Backpack blower	1	2-cycle
Plant/flower models	Set	
Soil Sterilizer	1	¼-yard capacity

Cluster: Agriculture, Food & Natural Resources
Pathway: Agricultural Power, Structural & Technical Systems
Program of Study: Agricultural Power, Structural & Technical Systems

Item Name	Number Needed	Specification/ Description
Oxyacetylene welding outfit	2	Single-stage installation A manifold
Oxyacetylene welding tables	2	
Anvil	1	70 lb.
Bench grinder	1	1" x 7", 1/2 hp
Arc welder	2	225 amp, AC-DC
MIG welder	1	
Arc welding table	2	36" x 36"
Engine, air cool gas	2	4-cycle & 2-cycle
Micrometer, inside/outside	1	
Air compressor	1	150 psi, 60-gal. tank
Gun, spray paint	1	1 qt.
Table saw	1	10", 2 hp
Automatic Level Kit	1	Level, Rod, Plum Bob, and Tripod
Welding tool kit	1	See Approved Kit List
Sheet metal &cold metal tool kit	1	See Approved Kit List
Plumbing tool kit	1	See Approved Kit List
Concrete tool kit	1	See Approved Kit List
Woodworking tool kit	1	See Approved Kit List
Power machines tool kit	1	See Approved Kit List
Electricity tool kit	1	See Approved Kit List
Small gas engines tool kit	1	See Approved Kit List
Laser Level	1	
Agri graphics tool kit	1	See Approved Kit List
Cabinets for each area	12	
Point Source Ventilation System	1	
Safety Equipment Kit	1	See Approved Kit List

Note: Same equipment is required regardless of class size.

Cluster: Agriculture, Food & Natural Resources
Pathway: Natural Resource & Environmental Systems
Program of Study: Natural Resource & Environmental Systems

Item Name	Number Needed	Specification/ Description
Land Measuring Wheel	1	
Forestry Instructional Kit	1	See Approved Kit List
Safety Equipment Kit	1	See Approved Kit List
GPS Receiver	10	
Laser Level or Automatic Level	1	
Soil Test Kit	1	See Approved Kit List
Water Test Kit	1	See Approved Kit List
Air Pollution Test Kit	1	See Approved Kit List
Microscope Compound	1	
Teaching Microscope	1	Digital
Student Microscope	10	10x, 40x objectives

If teaching Forestry, or substituting Forestry for Environmental Resources: Soil & Water, the following equipment must be in place in addition to the minimum for Natural Resources Program of Study:

Item Name	Number Needed	Specification/ Description
Clinometer	5	
Altimeter	5	
Tree Injector	1	
Staff Compass	1	
Stereoscope	1	5' common field of view
Increment Borer	1	
Tree Marking Gun	5	Backpack, 2-cycle
Mist blower	1	
Relaskop	1	16", 2-cycle
Wheeler Caliper	1	
Fire Weather Kit	1	See Approved Kit List
The following items should be in place for regular classroom demonstration and student application or school should have documentation of agreement with industry partner to provide classroom demonstration and application under industry supervision.		
Drip Torch	1	
Firefighting Pump	1	
Chainsaw	1	

Cluster: Agriculture, Food & Natural Resources
Pathway: Animal Systems
Program of Study: Animal Systems

Item Name	Number Needed	Specification/ Description
Teaching Microscope	1	Digital
Student Microscopes	10	10x, 40x objectives
Squeeze Chute w/Palpation Cage	1	
Livestock Panel	12	5' x 10'
Bow Panel Gates	3	5' x 10'

Item Name	Number Needed	Specification/ Description
Sweep Chute	1	90˚
Refrigerator	1	
Microwave Oven	1	
Liquid Nitrogen Tank	1	
Artificial Insemination Kit	1	See Approved Kit List
Livestock Management Kit	1	See Approved Kit List
DNA Model	1	
Food Preservation Kit	1	See Approved Kit List

AGRICULTURAL EDUCATION APPROVED KITS

Cluster: Agriculture, Food & Natural Resources
Pathway: Plant Systems
Program of Study: Plant Systems

Horticulture Tool Kit		
Item Name	Number Per Department	Specification/ Description
Round-Pointed Shovel	2	
Garden Trowel	5	
Scoop Shovel	2	
Garden Hoe	2	
Pitchfork or Spade Fork	2	
Lopping Shears	2	
Hedge Shears	2	
Double Edge Pruning Saw	1	
Hand-crank Spreader	1	
Wheel Barrow	1	
Garden Rake	2	
Pruning Knife	2	
Watering Can	2	

DNA Kit		
Item Name	Number Per Department	Specification/ Description
DNA Model	1	
DNA Extraction Lab Equipment	1	

Soil Testing Kit		
Item Name	Number Per Department	Specification/ Description
Soil Test Kit	1	Tests for N, P, K, and pH
Soil Tester	1	Test for soil moisture, light intensity

Water Test Kit		
Item Name	Number Per Department	Specification/ Description
Water Test Kit	1	Tests for chlorine, pH, alkalinity, calcium, nitrates, nitrites

Air Pollution Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Air Quality Test Kit	1	Tests for ammonia, carbon monoxide, chlorine

Cluster: Agriculture, Food & Natural Resources
Pathway: Agricultural Power, Structural & Technical Systems
Program of Study: Agricultural Power, Structural & Technical Systems

Welding Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Spark Lighter (Striker)	2	
Wire Brushes	2	
Oxyacetylene Tip Cleaners	2	
Scratch Awls	2	
Ball Peen Hammers	2 each	16 oz. and 24 oz.
Slip Joint Pliers	2	10”
Soapstone Holder	2	6”
Vise Grip	2	10”
Vise Grip Clamps	2	
C Clamps	2	6:
Machinist Vises	2	4½” jaw
Power Rules	2	¾ - 16’
Alum. Squares	2	12 x 24
Flat File	1	12”
Half Round	1	12’
Chipping Hammer	2	
Bench Grinder	1	8”
Portable Grinders	1 each	4½“ and 7½“

Plumbing Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Pipe Wrench	2 each	10” and 14”
Chain Pipe Wrench	1	10”
Channel Locks	2	
Pipe Cutter	1	⅛ to 1¼“
Tubing Cutters	2 each	⅛ to 1“ and ⅜ to 2”
Hacksaw	2	
Burr Reamer	1	
Flaring Tool	2	3/16 to ⅝”
Scratch Awls	2	
Wire Brush	2	
Oil Cans Pump Metal	2	
Pipe Threaders	1	⅛ to 1“
Hammers	2	
Propane Torch Kits	2	
Chain Vise		⅛ to 2½“

Plumbing Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Power Tubing Cutter1	1	

Concrete/Masonry Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Edger	2	
Jointers	2 each	½" and ⅝"
Broom	2	
Finishing Trowel	2	
Hand Float	2	
Bull Float	2	With handle
Pointing Trowel	2	
Masonry Drill Set	2	3/16 to ½"
Sledge Hammer	1	8 lb
Line Levels	2	
Wheel Barrow	1	6 cu ft, metal
Masonry Level	2	
Square Point Shovel	2	
Steel Tapes	2	⅜ x 50"
Bricklayer Hammers	2	
Half Hatchets	2	
Steel Squares	2	8 x 12
Level	2	2'
Torpedo Level	2	
Mortar Hoe	1	

Hand Woodworking Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Back Saw	2	
Hand Saw	2	
Compass Saw	2	
Coping Saw	2	
Wood Chisel	2	
Steel Tape	2	
Try Square	2	
Carpenter's Square	2	
Bevel	2	
Combination Square	2	
Curved Claw Hammer	2	
Rubber Mallet	2	
Bit Brace	2	
Nail Set	2	

Sheet Metal and Cold Metal Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Pop Rivet Gun	2	3/16
Awl Scratchers	2	
Tin Snips	2 each	Straight cut, left cut, right cut, circular cut
Combination Square	2	
Hex Key Sets	1 each	050-5/32, 3/16-3/8
Hacksaw		
Cold Chisel Sets	2	⅜ - ¾"
Adjustable Wrenches	2	
Tap & Die Set	1	
Screw Driver Sets	2	Standard and Phillips
Center Punch	2	
Ball Peen Hammer	2	
Soldering Iron	1	200 watt
Hand Seamer	1	
Steel Rulers	2	Pocket
Wire Brushes	2	
Uni Bit	2	
Rubber Mallet	2	
Tinners Hammer	2	
Ruler	5	6" folding
Vise Grips	2	Sheet metal
Slip joint Pliers	2	
Flat File	2 each	10" and 12"
Alum. Squares	2	16 x 24
Metal Bit Sets	2	1/16 to ½"
Drill Gauges	2	1/6 – ½"
Caliper Outside	1	
Oil Cans Pump Metal	2	
C Clamps	6	
Propane Bottles	2	
Steel Square	2	
Electric Soldering Gun	1	
Dual Caliper	1	
Drill Press Vise	1 each	4" and 6"

Power Machines Tool Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Saber Saw	1	
Reciprocating Saw	1	
Belt Sander	1 each	3 x 21 and 6 x 48
Disk Sander	1 each	6: and 9"
Router	1	
Electric Drill	1 each	⅜" and ½"
Nailer Air Brad	1	Up to 2"

Power Machines Tool Kit		
Item Name	Number Per Department	Specification/ Description
Hand Stapler	1	
Portable Grinders	1 each	4½" and 7½"
Air Impact Wrench	1 each	⅜ pistol grip, ⅜ ratchet, ½ drive
Circular Saw	1	
Router Bit Set	1	
Impact Set	1 each	⅜ socket set, ⅜ metric, and ½ socket set
Drill Press	1	17"
Band Saw	1	14"
18 Volt Drill	1	With 2 batteries and charger
Sliding Compound Miter Saw	1	

Electricity Tool Kit		
Item Name	Number Per Department	Specification/ Description
Hacksaw	2	
Cable Ripper	2	
Ball Peen Hammer	2	
Volt-Ohmmeter	2	
Screwdriver Sets	2 each	Standard and Metric 8 pc.
Adjustable Jaw Wrench	2	
Lineman's Pliers	2	
Longnose Pliers	2	
Wire Stripper	2	
Nut Driver Sets	2	
Diagonal Pliers	2	
Test Lights	2	
Commercial Wrench Set	2	¼, ⅜, ½"
AD/DC/110-550 Volt Tester	1	

Small Gas Engine Tool Kit		
Item Name	Number Per Department	Specification/ Description
Socket Set	2	
Torque Wrench	2	
Box End Wrench	2	
Combination Wrench	2	
Adjustable Wrench	2	
Allen Wrenches	2	
Open End Wrench	2	
Center Punch	2	
Drift Punch	2	
Retaining Ring Pliers	2	
Reed and Prince	2	
Phillips Screwdriver	2	
Slotted Screwdriver	2	

Small Gas Engine Tool Kit		
Item Name	Number Per Department	Specification/ Description
Gear Pullers	2	
Screw Pitch Gauge	2	
Ball Peen Hammer	2	
Pliers	2	
Longnose Pliers	2	
Vise Grips	2	

Agri Graphics Tool Kit		
Item Name	Number Per Department	Specification/ Description
Ruler	5	
Pencil	5	
Eraser	5	
Compass	5	
Protractor	5	
Drawing Board	5	
Right-Angle Triangle	2	
T-Square	2	
Triangular Scale	2	
Flat Scale	2	

Safety Equipment Kit		
Item Name	Number Per Department	Specification/ Description
Oxyacetylene Goggles	5	
Welding Helmets	10	
Welding Aprons	15	
Welding Gloves	15	

Cluster: Agriculture, Food & Natural Resources
Pathway: Natural Resource & Environmental Systems
Program of Study: Natural Resource & Environmental Systems

Forestry Instructional Kit		
Item Name	Number Per Department	Specification/ Description
Compass	10	
Biltmore Stick	5	
Diameter Tape	2	

Safety Equipment Kit		
Item Name	Number Per Department	Specification/ Description
Safety Glasses	20	
Hardhat	20	
First Aid Kit	1	
Fire Extinguisher	1	

Soil Testing Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Soil Test Kit	1	Tests for N, P, K, and pH

Water Test Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Water Test Kit	1	Tests for chlorine, pH, alkalinity, calcium, nitrates, nitrites

Air Pollution Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Air Quality Test Kit	1	Tests for ammonia, carbon monoxide, chlorine

Fire Weather Kit (for Forestry class)		
Item Name	**Number Per Department**	**Specification/ Description**
Wind Meter	1	
Compass	1	
Psychrometer	1	
Psychrometer Slide Rule	1	
Notebook Journal	1	

Cluster: Agriculture, Food & Natural Resources
Pathway: Animal Systems
Program of Study: Animal Systems

Artificial Insemination Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Cattle Insemination Gun	1	
Sheaths for Insemination Gun	1 box	
Thaw Unit	1	Electric
Thaw Unit	1	Manual
Straw Cutter	1	
Straw Tweezers	1	
Lubricant	1	
Shoulder Length Plastic Gloves	1 box	

Livestock Management Kit		
Item Name	**Number Per Department**	**Specification/ Description**
Balling Gun	1	Large animal
Balling Gun	1	Small animal
Dehorner	1	
Hoof Nippers	1	
Hoof Trimmers	1	Small animal
Ear Notcher	1	
Electric Branding Iron	1	
Paint Brander	1	

Livestock Management Kit		
Item Name	Number Per Department	Specification/ Description
Paint Brander Numbers Set	1	
Tattoo Kit	1	
Tag Applicator	1	
Scalpels	1 box	
Syringes	1 box	
Drench Gun	1	
Thermometer	1	
Hog Snare	1	
Sorting Stick	5	
Hanging Scales	1	
Calf Scale Birthweight Tape	1	
Soil Temperature Probe	1	
Digital Hay Tester	1	

Food Preservation Kit		
Item Name	Number Per Department	Specification/ Description
Food Dehydrator	1	
Electronic Yogurt Maker	1	
Cheese-Making Kit	1	
Kitchen Utensils	5	
Large Spoons	5	
Mixing Bowls	5	
Thermometer	5	
Knives	5	

Operational Guide for
Business and Marketing Technology

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: BUSINESS, MANAGEMENT & ADMINISTRATION	
Pathway	**Program of Study**
Administrative Services	Office Administration
General Management	Management

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: FINANCE	
Pathway	**Program of Study**
Accounting	Accounting
Banking Services	Banking
Business Finance	Business Finance
Insurance & Investments	Insurance & Investments

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: HOSPITALITY & TOURISM	
Pathway	**Program of Study**
Travel & Tourism	Hospitality

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: INFORMATION TECHNOLOGY	
Pathway	**Program of Study**
Web Design & Digital Communications	Digital Communications Web Design (CIW)

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: MARKETING, SALES & SERVICE	
Pathway	**Program of Study**
Marketing Research	Marketing Technology & Research
Marketing Management	Entrepreneurship

CAREER CLUSTERS: BUSINESS, MANAGEMENT & ADMINISTRATION; FINANCE; HOSPITALITY & TOURISM; AND INFORMATION TECHNOLOGY

BUSINESS TECHNOLOGY

Program Description

Business technology programs are designed to prepare individuals to perform managerial, research, and technical support functions related to production and buying as well as selling goods and services.

Technical support functions include word processing and data-entry skills, use of the latest in modern business equipment, communication, and accounting skills. Business information processing includes the skills to process and retrieve internal business information and respond to external data requests. Enterprise management prepares individuals to develop, own, and operate businesses, including the applications of doing business in international markets and finance.

Occupational Program

Business technology has four career clusters from which students may choose. Specific courses are required for each of the programs of study (pathways); in addition, various options may be selected to complete the required curriculum.

Career and Technical Student Organization (CTSO)

Future Business Leaders of America (FBLA) or DECA shall be an integral part of the business technology and marketing instructional program and shall follow the guidelines, goals, objectives, and shall participate in activities of the state and national organization.

CAREER CLUSTER: MARKETING, SALES & SERVICE

MARKETING TECHNOLOGY

Planning, managing, and performing marketing activities to reach organizational objectives

Program Description

Marketing technology provides instruction that prepares individuals to plan and execute, at the operational or direct sales level, the promotion and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives. Marketing tasks will include segments of the apparel and fashion industry, retailing of food, real estate, tourism, vehicle and petroleum operations, as well as developing business enterprises.

Occupational Program

One career focus program of study (pathway) is provided for students in this cluster, but several options are available as individual drawing boards are developed. The two two-semester capstone courses are Marketing and Marketing Management. In addition to the core marketing courses, related classes may be selected from those listed below in Optional Courses.

The career focus program of study for marketing technology is based on three broad competency areas that are essential for success in any marketing occupation—economic fundamentals of marketing; human resource foundation; marketing and business foundations.

Career and Technical Student Organization (CTSO)

Future Business Leaders of America (FBLA) or DECA shall be an integral part of the business technology and marketing instructional program and shall follow the guidelines, goals, objectives, and shall participate in activities of the state and national organization.

Pathways and Programs of Study by Career Cluster

Business, Management & Administration Cluster

Business, management, and administration careers encompass planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations. Business, management, and administration career opportunities are available in every sector of the economy.

General Management Pathway
Management Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND								
492320	Management	1					X	X
AND One Unit of the Following								
492100	Computerized Accounting I	1				X	X	X
492070	Business Law I	.5				X	X	X
492080	Business Law II	.5				X	X	X
492060	Business Communications	.5			X	X	X	X
492380	Office Management	1			X	X	X	X

Administrative Services (Available as a Program of Study until 2017-2018)
Office Administration Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND								
492100	Computerized Accounting I	1				X	X	X
AND One Unit of the Following								
492380	Office Management	1			X	X	X	X
492130	Office Education Cooperative	1					X	X

Finance Cluster

Planning, services for financial and investment planning, banking, insurance, and business financial management

Accounting Pathway
Accounting Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND								
492100	Computerized Accounting I	1				X	X	X
492110	Computerized Accounting II	1				X	X	X

Banking Services Pathway
Banking Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND								
492100	Computerized Accounting I	1				X	X	X
492050	Banking & Finance Principles	.5			X	X	X	X
AND One Unit of the Following								
492040	B&F Operations/Teller Training	.5				X	X	X
492020	B&F Consumer Lending	.5				X	X	X
492030	B&F Law	.5				X	X	X

Business Finance Pathway
Business Finance Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND								
492100	Computerized Accounting I	1				X	X	X
492140	Database Applications	.5				X	X	X
492450	Advanced Spreadsheet Applications	.5				X	X	X

Insurance & Investments Pathway
Insurance & Investments Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND								
492100	Computerized Accounting I	1				X	X	X
492270	Investments & Securities	.5			X	X	X	X
492210	Insurance and Risk Management	.5			X	X	X	X

Securities & Investments Pathway (Available as a Program of Study until 2017-2018)
Securities & Investments Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND								
492100	Computerized Accounting I	1				X	X	X
492270	Investments & Securities	.5			X	X	X	X
AND One-Half Unit of the Following								
474300	Economics	.5			X	X	X	X
492280	Economics	.5			X	X	X	X
491990	Financial Literacy	.5			X	X	X	X

Insurance Pathway (Available as a Program of Study until 2017-2018)
Insurance & Risk Management Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND								
492100	Computerized Accounting I	1				X	X	X
492210	Insurance & Risk Management	.5			X	X	X	X
AND One-Half Unit of the Following								
474300	Economics	.5			X	X	X	X
492280	Economics	.5			X	X	X	X
491990	Financial Literacy	.5			X	X	X	X

Hospitality & Tourism Cluster

Hospitality & Tourism encompasses the management, marketing, and operations of restaurants and other food services, lodging, attractions, recreation events, and travel-related services

Travel & Tourism Pathway
Hospitality Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND								
492260	Introduction to Travel & Tourism	.5			X	X	X	X
492250	Introduction to Hospitality	.5			X	X	X	X
AND One Unit of the Following								
492460	Travel Destinations	.5			X	X	X	X
492230	International Travel	.5			X	X	X	X
492300	Lodging Management I	1			X	X	X	X

Lodging Pathway (Available as a Program of Study until 2017-2018)
Lodging Management Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND								
492300	Lodging Management I	1			X	X	X	X
492310	Lodging Management II	1			X	X	X	X

Information Technology Cluster

Building linkages in IT occupations framework: for entry level, technical, and professional careers related to the design, development, support, and management of hardware, software, multimedia, and systems integration services

Web Design & Digital Communications Pathway
Digital Communications Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND								
492150	DC I-Digital Layout and Design	.5			X	X	X	X
492160	DC II-Digital Imaging	.5			X	X	X	X

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492360	DC III-Digital Media	.5			X	X	X	X
492370	DC IV-Digital Audio/Video Productions	.5			X	X	X	X
Optional, but encouraged 4th Unit								
492550	ACE Approved Senior Tech Seminar	1						X

Web Design Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
Seek ACE prior approval before implementation								
A student may be added to Web Design by Teacher Recommendation								
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND One of the following Two Options								
492650	Web Page Design I-Associate Design Specialist	1				X	X	X
492660	Web Page Design II- Internet Business Foundations/Network Technology Foundations	1				X	X	X
OR								
492150	DC I-Digital Layout and Design	.5			X	X	X	X
492160	DC II-Digital Imaging	.5			X	X	X	X
492670	Web Technologies	1				X	X	X
Optional, but encouraged 4th Unit								
492360	DC III-Digital Media	.5			X	X	X	X
492370	DC IV-Digital Audio/Video Productions	.5			X	X	X	X
492550	ACE Approved Senior Tech Seminar	1						X

Marketing, Sales & Service Cluster

Planning, managing, and performing marketing activities to reach organizational objectives

Marketing Management Pathway
Entrepreneurship Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND								
492170	Entrepreneurship I	.5			X	X	X	X
492180	Entrepreneurship II	.5			X	X	X	X
AND One Unit of the Following								
492100	Computerized Accounting I	1				X	X	X
492700	Small Business Operations	1				X	X	X

Marketing Research Pathway
Marketing Technology & Research Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
One Unit of the Following								
492120	Computerized Business Applications	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
AND								
492330	Marketing	1					X	X
AND One Unit of the Following								
492350	Marketing Management	1					X	X
492340	Marketing Apprenticeship/Work-Based Learning	.5 – 2					X	X
492700	Small Business Operations	1				X	X	X

BUSINESS AND MARKETING TECHNOLOGY COURSES:

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
492140	Advanced Database Applications	.5				X	X	X
492450	Advanced Spreadsheet Applications	.5				X	X	X
492010	Advertising	.5			X	X	X	X
492020	Banking & Finance Consumer Lending	.5			X	X	X	X
492030	Banking & Finance Law	.5			X	X	X	X
492040	Banking & Finance Operations/Teller Training	.5			X	X	X	X
492050	Banking & Finance Principles	.5			X	X	X	X
492060	Business Communications	.5			X	X	X	X
492070	Business Law I	.5			X	X	X	X
492080	Business Law II	.5			X	X	X	X
492100	Computerized Accounting I	1				X	X	X
492110	Computerized Accounting II	1				X	X	X
492120	Computerized Business Applications	1			X	X	X	X
492150	DC I-Digital Layout and Design	.5			X	X	X	X
492160	DC II-Digital Imaging	.5			X	X	X	X
492360	DC III-Digital Media	.5			X	X	X	X
492370	DC IV-Digital Audio/Video Productions	.5			X	X	X	X
492170	Entrepreneurship I	.5			X	X	X	X
492180	Entrepreneurship II	.5			X	X	X	X
492190	Fashion Merchandising	.5			X	X	X	X
491990	Financial Literacy	.5			X	X	X	X
492210	Insurance & Risk Management	.5			X	X	X	X
492220	International Business	.5			X	X	X	X
492230	International Travel	.5			X	X	X	X
492250	Introduction to Hospitality	.5			X	X	X	X
492630	Introduction to Marketing	.5			X	X		
492260	Introduction to Travel & Tourism	.5			X	X	X	X
492270	Investments & Securities	.5			X	X	X	X
690050	Keyboarding (Local Credit Only)	.5			X	X	X	X
690060	Keyboarding Application (Local Credit Only)	.5			X	X	X	X
492300	Lodging Management I (Business)	1			X	X	X	X
492310	Lodging Management II (Business)	1			X	X	X	X
492320	Management	1			X	X	X	X
492330	Marketing	1				X	X	X
492340	Marketing Apprenticeship/Work Based Learning	1					X	X
492350	Marketing Management	1					X	X
492690	Medical Office Procedures	1					X	X
492230	Office Education Cooperative	1					X	X
492620	Office Education Work Based Learning	1					X	X
492380	Office Management	1			X		X	X
492430	Retailing	.5			X	X	X	X
492440	Salesmanship	.5			X	X	X	X
492700	Small Business Operations					X	X	X

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
492640	Sports and Entertainment Marketing	.5			X	X	X	X
460100	Technology Design and Applications	1			X	X	X	X
492460	Travel Destinations	.5			X	X	X	X
492670	Web Technologies	1				X	X	X
492470	Word Processing I	.5			X	X	X	X
492480	Word Processing II	.5			X	X	X	X

Course Code	ACE Prior Approval Courses	Units of Credit	7th	8th	9th	10th	11th	12th
	District must seek ACE prior approval before implementation							
492600	Business Education	1			X	X	X	X
590070	Business Education	1			X	X	X	X
492490	Computer Applications I	.5			X	X	X	X
492500	Computer Applications II	.5			X	X	X	X
492510	Computer Applications III	.5			X	X	X	X
492610	Marketing Education	1			X	X	X	X
590080	Marketing Education	1			X	X	X	X
492520	Programming III	.5				X	X	X
492550	Senior Technology Seminar	1						X
492650	Web Page Design I – Associate Design Specialist	1				X	X	X
492660	Web Page Design II – Internet Business Foundations/Network Technology Foundations	1				X	X	X

Course Code	Middle School Courses	Units of Credit	7th	8th	9th	10th	11th	12th
399040	Computer Technology: Introduction	0	X	X				
399050	Keyboarding	0	X	X				
399060	Keyboarding Applications	0	X	X				

Course Code	ACE Prior Approval Middle School Courses	Units of Credit	5th	6th	7th	8th	9th	10th	11th	12th
	District must seek ACE prior approval before implementation									
399230	ACE Approved Keyboarding (5-6)	0	X	X						
399020	Computer Applications I	0				X				
378910	Information and Communications Technology	0			X	X				
399010	Information Tech: Fundamentals	0			X	X				
355910	Input Technologies	0	X							
378920	Introduction to Business Communications and Technology	0			X	X				
399240	Keyboarding Connections	0			X	X				
366910	Technology Communications	0		X						

CAREER CLUSTER: BUSINESS, MANAGEMENT & ADMINISTRATION; FINANCE; HOSPITALITY & TOURISM, INFORMATION TECHNOLOGY; and MARKETING, SALES & SERVICE (all pathways)

492140   Advanced Database Applications
Credit: .5   Grade Levels: 10-12
Advanced Database Applications is a one-semester course in which students learn to organize data; create, search, and query databases; and use integrated software to combine database with word processing and mail merge.

492450   Advanced Spreadsheet Applications
Credit: .5   Grade Levels: 10-12
Advanced Spreadsheet Applications is a one-semester course in which students use computer programs to analyze quantitative data. Emphasis is placed on the role and value of spreadsheets, financial reporting, budgeting, planning, and forecasting.

492010   Advertising
Credit: .5   Grade Levels: 9-12
Advertising is a one-semester course designed to focus on the competencies needed for the planning and implementation of a successful advertising program. Students are exposed to media, methods of research, budgets, and evaluations that are used to sell a product, service, or business. Hands-on experience is given in copywriting, layout, and production in various media. Desktop publishing should be introduced.

492020   Banking & Finance Consumer Lending
Credit: .5   Grade Levels: 9-12
Banking and Finance Consumer Lending is a one-semester course that focuses on the insider's view of consumer lending and covers essential information about the maze of regulations covering credit practices and reviews loan processing, cross-selling and collections. The targeted audience includes consumer lenders, consumer credit personnel, and bank employees who need to understand consumer credit.

492030   Banking & Finance Law
Credit: .5   Grade Levels: 9-12
Banking and Finance Law is a one-semester course that assists the student in understanding the legal environment in which depository institutions exist. Students study basic concepts in business law in the areas of contract law, agency law, property law, commercial paper law, and credit law. This curriculum is adopted from Wisconsin Finance Youth Apprenticeship, Wisconsin Department of Industry, Labor, and Human Relations, Bureau of Apprenticeship Standards, Office for Workforce Excellence.

492040   Banking & Finance Operations/Teller Training
Credit: .5   Grade Levels: 9-12
Banking and Finance Operations is a one-semester course that assists the student in understanding the United States payment system and daily operations of depository institutions. Students study regulatory framework, the U.S. payment system, the check collection system, money creation, internal controls, financial statements, and risks. This curriculum is adapted from Wisconsin Finance Youth Apprenticeship, Wisconsin Department of Industry, Labor, and Human Relations, Bureau of Apprenticeship Standards, Office for Workforce Excellence.

492050   Banking & Finance Principles
Credit: .5   Grade Levels: 9-12
Banking and Finance Principles is a one-semester course that assists the students in understanding the American banking system. Students study the Federal Reserve System, banking and the economy, functions of depository institutions, and daily transactions of depository institutions. This curriculum is adopted from Wisconsin Finance Youth Apprenticeship, Wisconsin Department of Industry, Labor, and Human Relations, Bureau of Apprenticeship Standards, Office for Workforce Excellence.

492060   Business Communications
Credit: .5   Grade Levels: 9-12
Business Communications is a one-semester course designed to provide students with the communication skills needed in business careers. The course includes both written and oral communications relating to business activities and is directed toward understanding the language of nonverbal communication and improved listening skills, reading, voice usage, and writing skills. Emphasis is given to developing competencies in fundamentals, such as spelling, punctuation, grammar, vocabulary, sentence and paragraph structure, English usage, and proofreading. Applications in writing all types of business documents are valuable components of the course. Students gain competencies in writing, thinking logically, organizing ideas, writing clearly and concisely, and displaying tact and courtesy in writing. Technological advancements relating to information, communication, and telecommunications are given emphasis.

492070   Business Law I
Credit: .5   Grade Levels: 10-12
Business Law I is a one-semester course designed to acquaint the student with some of the legal problems and rights encountered in business transactions. This course will include law and the judicial system; laws relating to minors, consumers, and the business firm; elements of contracts; credit; sales contracts; employment laws; commercial paper; insurance; and property rights.

492080   Business Law II
Credit: .5   Grade Levels: 10-12
Business Law II is a one-semester course designed to acquaint the student with some of the legal problems and rights encountered in business transactions. This course will include law and the judicial system; laws relating to minors, consumers, and the business firm; elements of contracts; credit; sales contracts; employment laws; commercial paper; insurance; and property rights.

492100   Computerized Accounting I
Credit: 1   Grade Levels: 10-12
Computerized Accounting I is a two-semester course with emphasis on basic accounting principles as they relate to both manual and computerized financial systems. Instruction is on an integrated basis using computers and electronic calculators as the relationships and processes of manual and computerized accounting are presented. Entry-level skills in the accounting occupations can be attained.

492110   Computerized Accounting II
Credit: 1   Grade Levels: 10-12
Computerized Accounting II is a two-semester course designed to provide students with the knowledge, understanding, and skill necessary for successful careers in accounting. Partnership as well as departmental, corporate, and cost accounting systems are components of the course. Emphasis is given to the computerized/automated functions in accounting.

492120   Computerized Business Applications
Credit: 1   Grade Levels: 9-12
Computerized Business Applications is a two-semester course designed to prepare students with an introduction to business applications that are necessary to live and work in a technological society. Emphasis is given to hardware, concepts, and business uses of applications. The business applications covered are word processing, database, spreadsheet, telecommunications, presentation, and Web page design. This course will also meet the one unit required in the Standards for Computer Applications.

492150   Digital Communications I – Layout and Design
Credit: .5   Grade Levels: 9-12
Digital Communications I is a one-semester course that combines the versatility of the microcomputer with page design software, enabling students to produce materials of near photo quality. The course includes page composition, layout, design, editing functions, and a variety of printing options.

492160   Digital Communications II – Imaging
Credit: .5   Grade Levels: 9-12
Digital Communications II is a one-semester course designed to study the process of analyzing information and audience and choosing the appropriate visual signals to communicate the desired message effectively. Applied principles are used to analyze and organize information, set up a design structure, and produce special visual expressions.

492360   Digital Communications III – Digital Media
Credit: .5   Grade Levels: 9-12
Digital Communications III is a one-semester course giving students experience in using multimedia to merge text, graphics, video, and sound. Applied principles are used to analyze and organize information, set up a design structure, and produce special visual expressions.

492370   Digital Communications IV – Audio/Video Productions
Credit: .5   Grade Levels: 9-12
Digital Communications IV is a one-semester course giving students advanced experience in using multimedia to merge text, graphics, video, and sound. Applied principles are used to analyze and organize information, set up a design structure, and produce special visual expressions.

492280   Economics
Credit: .5   Grade Levels: 9-12
Economics is a one-semester course that emphasizes economic fundamentals, microeconomics, macroeconomics, and personal financial management. Students will explore the interrelationships among the roles played by consumers, producers, capital, land, and labor as well as the interrelationships among economic, political, and social lives. Additionally, students will examine the relationship between individual choices and the direct influence of these choices on occupational goals and future earnings potential. Economics stresses application, problem-solving, higher-order thinking skills, and use of classroom performance-based, open-ended assessments with rubrics.   Economics is required by the Standards for Accreditation and does not require Arkansas Department of Education approval.

492170   Entrepreneurship I
Credit: .5   Grade Levels: 9-12
Enterprise Management I is a one-semester course designed to offer an overview of the American business enterprise system. It provides a study of various forms of ownership, internal organization, management functions, and financing as they relate to business. The course content focuses on the concepts and practices of small business ownership and management. The student should be introduced to microcomputer software that is used as a tool for management functions.

492180   Entrepreneurship II
Credit: .5   Grade Levels: 9-12
Enterprise Management II is a one-semester course that incorporates applied economics with emphasis on current applications of economic theory, international economics, and small business economic applications. It is recommended that Economics at Work – developed by the Agency for Instructional Technology, the National Council on Economic Education, and a consortium of state education agencies – be utilized in the second semester as a contextual, multimedia approach designed around five major economic activities, including producing, exchanging, consuming, saving, and investing.

492190   Fashion Merchandising
Credit: .5   Grade Levels: 9-12
Fashion Merchandising is a one-semester course designed to offer an overview of the fashion industry. It provides the foundation in preparing students for a wide range of careers available in the different levels of the fashion industry. Emphasis is given to historical development, textiles, manufacturers, merchandising, domestic and foreign markets, accessories, and retailing.

491990   Financial Literacy
Credit: .5   Grade Levels: 9-12
This one-semester course designed to increase financial literacy and prepare students to successfully manage financial resources. This course also focuses on the individual's role and financial responsibilities as a student, citizen, consumer, and active participant in the business world. Emphasis is also placed on activities and competitions within career and technical student organizations (i.e., FBLA, FCCLA, and DECA). **(This course replaces 492240 Introduction to Finance.)**

492210   Insurance & Risk Management
Credit: .5   Grade Levels: 9-12
Insurance & Risk Management provides an overview of the insurance industry, including various types of insurance, rates and claims, and career opportunities. Included are activities that help the student to better understand the importance of insurance and how it affects them both today and through their retirement years.

492220   International Business
Credit: .5   Grade Levels 9-12
International Business is a one-semester course pursuing the study of economics, competition, politics, and social activities across national boundaries. Students are taught to think in global terms concerning their legal, cultural, economic, and political environments.

492230   International Travel
Credit: .5   Grade Levels: 9-12
International Travel is a one-semester course that provides detailed coverage of international air travel; geography; international airfares and ticketing procedures; travel requirements; travel in Europe, Russia, Asia, and the Pacific; ecotourism analysis; and broadening of global horizons to maximize cultural understanding.

492240   Introduction to Finance
Credit: .5   Grade Levels: 9-12
Introduction to Finance focuses on the individual's role and financial responsibilities as a student, citizen, consumer, and an active participant in the business world. It informs students of their various financial responsibilities.

492250   Introduction to Hospitality
Credit: .5   Grade Levels: 9-12
Introduction to Hospitality is a one-semester course that provides students with an overview of the hospitality industry and career opportunities within the industry. Students learn operation procedures in front office operations, guest services, marketing and sales, bank office functions, ownership and management, food, beverages, and housekeeping management.

492630   Introduction to Marketing
Credit: .5   Grade Levels: 9-10
Introduction to Marketing is a one-semester course designed to provide students with a basic understanding of marketing and its role in society. Instruction will focus on how marketing impacts businesses, helps people, and benefits society. Students will examine career opportunities in marketing and explore the interpersonal and communication skills needed for success in marketing careers. The course will include the history and development of marketing in a global economy. Students enrolled in the Introduction to Marketing class will have access to the student organization known as DECA: An Association of Marketing Students.

492260   Introduction to Travel & Tourism
Credit: .5   Grade Levels: 9-12
Introduction to Travel and Tourism is a one-semester in-depth study of worldwide travel, transportation, and tourism. Students are introduced to the industry as a whole and the job opportunities that are available. The course covers resource allocation, technology, and social, organizational, and technological systems.

492270   Investments & Securities
Credit: .5   Grade Levels: 9-12
Introduction to Investments & Securities teaches students every step of the way toward smart saving and investing. Topics include how to invest in everything from certificates of deposit to mutual funds and stocks. The course will teach students how to research stocks and make informed decisions by using NAIC's Stock Selection Guide.

690050   Keyboarding (9-12)
Credit: .5   Grade Levels: 9-12
Keyboarding is a one-semester course designed to help students develop speed and accuracy by learning the touch operation of alphanumeric/keyboard characters. Emphasis is placed on the following: mastery of the keyboard with desirable keyboarding techniques; development of speed and accuracy; basic problem-solving applications of centering and arranging reports, letters, and tables; proofreading; formatting; and proper care of the equipment. Keyboarding is a foundation for developing entry-level skills for business careers. Only students who failed or did not take Keyboarding in the seventh or eighth grade are to be enrolled in this course.

690060   Keyboarding Applications (9-12)
Credit: .5   Grade Levels: 9-12
Keyboarding Applications is a one-semester course designed to further develop keyboarding skills. Emphasis is placed on the following: increasing speed and accuracy; proofreading; producing mailable copy from rough draft; producing handwritten and statistical documents; and improving production of various types of business communications. Keyboarding Applications provides the skills and knowledge necessary for entry-level employment for business careers. Only students who failed or did not take Keyboarding Applications in the seventh or eighth grade are to be enrolled in this course.

492300   Lodging Management I (Business)
Credit: 1   Grade Levels: 9-12
Lodging Management I has everything a student needs to get started in a hospitality career, with the classroom lessons and activities that teach valuable lodging skills and knowledge. This two-semester course is offered to 10th through 12th-grade students with an opportunity upon graduation to be tested for industry-recognized certification.

492310   Lodging Management II (Business)
Credit: 1   Grade Levels: 9-12
Tools are provided to aid the student in finding hospitality internships (jobs) under the supervision of work-site mentors so students can apply what they learn. When students graduate, they are ready to begin hospitality careers or continue their education at a college or university. This two-semester course is offered to 10th through 12th-grade students with an opportunity upon graduation to be tested for industry-recognized certification.

492320   Management
Credit: 1   Grade Levels: 10-12
Management is a two-semester course that assists the student in understanding basic management functions. Students study the management process, decision making, environmental factors, basic ethics, and social responsibility. Planning, organizing, leading, and controlling are emphasized as well as basic concepts of staffing, leadership, communications, entrepreneurship, and international management.

492330   Marketing
Credit: 1   Grade Levels: 11-12
Marketing is a two-semester course designed to provide students with the fundamental concepts, principles, skills, and attitudes common to the field of marketing. Instruction focuses on market types, market analysis, consumer types, planning, promotion, buying, pricing, distribution, finance, trends, and careers. Although not mandatory, many students can benefit from the on-the-job training component (cooperative education) of this course. The student's job must relate to his/her career objective.

492340   Marketing Apprenticeship/Work-Based Learning
Credit: .5   Grade Levels: 11-12
Although not mandatory, many students can benefit from the on-the-job training component (cooperative education) of Marketing and Marketing Management. The student's job must relate to his/her career objective, and the work-site trainer must develop a list of competencies to be taught on the job that coordinate with classroom competencies and career objectives. All aspects of the industry must be taught. Students attend school part of the day and work in a marketing position for the remainder. A minimum of 135 hours during each semester on the job is required for the work experience credit of .5.

492350   Marketing Management
Credit: 1   Grade Levels: 10-12
Marketing Management is a two-semester course designed to develop decision-making skill through the application of marketing and management principles. Competencies will be accomplished by utilizing various instructional methods, resources, and direct involvement with marketing businesses. The course will focus on organization, finance, risks, credit, technology, and social aspects. Although not mandatory, many students can benefit from the on-the-job training component (cooperative education) of this course. The student's job must relate to his/her career objective.

492690   Medical Office Procedures
Credit: 1   Grade Levels: 11-12
Medical Office Procedures is a two-semester course focusing on management and supervision in the Health Informatics office environment. The course covers basic skills in word processing, database, spreadsheet, presentation, desktop publishing, 10-key calculating, record keeping, communicating and transcribing, as well as decision making, critical thinking, teamwork and ethics.

492130   Office Education Cooperative
Credit: 1   Grade Levels: 11-12
Office Education Cooperative is a two-semester course designed for junior and senior business students. This course covers such topics as use of current technology and communications, ergonomics, human relations, records management, and the basics of management and supervision. A supervised learning experience is required. This experience is for advanced business education students who attend school part of the day and work in a business office for the remainder.

492620   Office Education Work-Based Learning
Credit: 1   Grade Levels: 11-12
The student's job must relate to his/her career objective and the work-site trainer must develop a list of competencies to be taught on the job relating to classroom competencies and career objectives. All aspects of the industry must be taught. A minimum of 135 hours during each semester on the job is required for the work experience credit of .5.

492380   Office Management
Credit: 1   Grade Levels: 10-12
Office Management is a two-semester course focusing on management and supervision in the office environment. The course covers basic skills, such as word processing, records management, and communications, as well as decision making, critical thinking, teamwork, and ethics.

492430   Retailing
Credit: .5   Grade Levels: 9-12
Retailing is a one-semester course designed to offer an overview of the retailing industry in the United States. A study is made of the types of retail marketing, organization, personnel, merchandising, promotion, selling, operations, and control. The course focuses on the concepts and practices of retail business operations.

492440   Salesmanship
Credit: .5   Grade Levels: 9-12
Salesmanship is a one-semester course designed to inform students about specific selling techniques and attitudes necessary to become a successful salesperson. The course focuses on serving customers and helping them make wise buying decisions. Emphasis is placed on the importance of human relations in selling, the functions performed by salespeople, development of personality traits needed by salespeople, and the buying/selling process.

492700   Small Business Operations
Credit: 1   Grade Levels: 10-12
Small Business Operations is a two-semester course designed for students interested in learning how to manage a small business. Students will be required to participate in laboratory work. The lab experience will consist of operating a School Based Enterprise. IN addition to the lab work, students will also complete a series of lessons designed to prepare them for the transition to higher education and/or an entrepreneurial career. Although it is not mandatory, many students can benefit from the on-the-job training component (cooperative education) of this course. The student's job must relate to his/her career objective.

492640   Sports and Entertainment Marketing
Credit: .5   Grade Levels: 9-12
Sports and Entertainment Marketing is a one-semester course designed to provide students with an understanding of marketing concepts, foundations, and functions as they relate to career opportunities in the growing area of sports and entertainment. Instruction will focus on public relations and publicity, event planning and marketing, sponsorship, venue design, concessions, risk management, product planning, licensing, ticket sales, and distribution.

460100   Technology Design and Applications
Credit: 1   Grade Levels: 9-12
This course is designed to prepare students for the transition from school to work. This course was developed to advance and strengthen the skills mastered in the middle-level grades. It includes project based learning in areas of word processing, spreadsheets, database, and presentations. The students will apply tool software skills to business projects and use projects to develop competencies for national certification. The course is designed to provide opportunities for independent and collaborative work. It is a year-long course.

492460   Travel Destinations
Credit: .5   Grade Levels: 9-12
Travel Destinations is a one-semester course that provides a working knowledge of the geography of the earth as it relates to travel and tourism. Focus is on the attractions of place, patterns and processes of World Tourism, Geography and Travel and tourism in North America, Mexico, Central America, The Caribbean, South America, Europe, The Middle East, Africa, Asia, Australia, New Zealand and the South Pacific.

492470   Word Processing I
Credit: .5   Grade Levels: 9-12
Word Processing I is a one-semester course designed to provide students with entry-level skills in word processing concepts, operations, text manipulations, and production of business documents using an intermediate or advanced level software program. In addition, training in basic word vocabulary skills, mechanics of punctuation and grammar, format, and style, proofreading, editing, and reviewing business documents are included in the course.

492480   Word Processing II
Credit: .5   Grade Levels: 9-12
Word Processing II is a one-semester course designed to provide students with competencies in word processing concepts. Emphasis is on production of business documents and applications, including formats, creating and maintaining files, repetitive documents, revising, and printing.

ACE Prior Approval Business/Marketing Courses

492600   ACE-Approved Business Education
Credit: 1   Grade Levels: 9-12
This is an individually approved course in business education submitted by the district.

590070   ACE-Approved Business Education
Credit: 1   Grade Levels: 9-12
This is an individually approved course in business education submitted by the district.

492490   ACE-Approved Computer Applications I (9-12)
Credit: .5   Grade Levels: 9-12
Computer Applications I is a half-unit course designed to provide students with the fundamental computer skills necessary to do well in high school and in virtually all jobs today. In the area of word processing, students will learn the fundamental skills necessary to create and edit the most widely used documents and use the most commonly used features of a word processor, such as bullets, numbered lists, special characters, borders and shading, fonts, and paragraph and line searching. The fundamentals in use of scanners, graphics, and Word Art are applied to documents. Internet searching skills and citing Internet sources are stressed with these applied to a simple PowerPoint presentation. In the area of spreadsheets, students will be expected to create and edit simple spreadsheets using basic formulas and functions and create a simple graph or chart. Districts desiring to implement this course should request approval from the Business/ Marketing Education Office.

492500   ACE-Approved Computer Applications II
Credit: .5   Grade Levels: 9-12
Computer Applications II is a half-unit course designed to provide students with the intermediate computer skills necessary to do well in high school and in virtually all jobs today. Students will learn techniques that will allow them to create fairly complex word processing and spreadsheet documents. They will continue their Internet research, applying it to spreadsheets, charts and graphs, and Web pages. Districts desiring to implement this course should request approval from the Business/Marketing Education Office.

492510   ACE-Approved Computer Applications III
Credit: .5   Grade Levels: 9-12
Computer Applications III is a half-unit course designed to provide students with the computer skills necessary to do well in college and needed in most jobs today. Students will learn techniques that will allow them to create simple to intermediate desktop publishing documents; create, access, and edit databases; use e-mail efficiently and ethically; create advanced electronic presentations; and create Web pages using Web-page design software. They will continue their Internet research, applying it to advanced electronic presentations and the Web pages they create. Districts desiring to implement this course should request approval from the Business/Marketing Education Office.

590080   ACE-Approved Marketing Education
Credit: 1   Grade Levels: 9-12
This is an individually approved course in marketing education submitted by the district.

492610   ACE-Approved Marketing Education
Credit: 1   Grade Levels: 9-12
This is an individually approved course in marketing education submitted by the district.

492550   ACE-Approved Senior Technology Seminar
Credit: 1   Grade Levels: 12
In this project-based course, students are assigned actual computer projects from the school district and local businesses. The projects may include creating presentations to be used at meetings and seminars, creating advanced databases, maintaining Web pages, customizing database reports and screens, maintaining computers, etc. Districts desiring to implement this course should request approval from the Business/Marketing Education Office.

492650   ACE Approved Web Page Design I – Associate Design Specialist
Credit: 1   Grade Levels: 10-12
Web Design I – Foundations is the first level of Web Page Design, and it prepares students with work-related skills for advancement into postsecondary education or industry. Course content includes exposure to basic Web design and the dynamics of networking/internetworking, Web hosting and Web design in e-commerce. The course content provides students the opportunity to acquire fundamental skills in both theory and practical application of Web design and of leadership and interpersonal skill development. Laboratory facilities and experiences simulate those found in the Web Page Design and construction industry. Further, this course provides for and directly maps to the Certified Internet Webmaster "Foundations" national certification examination.

492660   ACE Approved Web Page Design II – Internet Business Foundations/Network Technology Foundations
Credit: 1   Grade Levels: 10-12
Web Page Design II – Site Designer is the second level of Web Page Design concentration, and it prepares students with work-related skills for advancement into postsecondary education or industry. Course content includes exposure to basic and advanced Web design, pixilated and vector-based Web graphics, Web animations, dynamics of Web hosting, and Web design in eCommerce. The course content provides students the opportunity to acquire fundamental skills in both theory and practical application of Web design and of leadership and interpersonal skill development. Laboratory facilities and experiences simulate those found in the Web page design and Web page construction industry. Further, this course provides for and directly maps to the Certified Internet Webmaster "Site Designer" national certification examination.

492670   Web Technologies
Credit: 1   Grade Levels: 10-12
This course is an exploration of all of the elements of good web page design. Students will begin by creating web pages using HTML, XHTML and CSS. Students will investigate several Adobe software packages to enhance web sites such as: PhotoShop to create and edit graphics; Flash to create animations and web banners; Fireworks to create and optimize images for the web; and Premiere or other video/audio software to create and edit videos and audio. Students will focus on how to use web design software such as Dreamweaver to create websites. Students will also use multimedia equipment such as digital cameras and camcorders to add this rich media to websites. Students will complete several real-world applications such as Flash videos and web pages for the school or other organizations or businesses. Web Communication using Adobe Dreamweaver® (Associate) certification is encouraged.

Middle School Courses

378910　　Information and Communications Technology
1 Semester　Grade Levels:　7-8 (NO CREDIT)
This course is designed to prepare students for the transition into 9th grade. This course is the culmination of skills mastered beginning in the 5th grade, while adding database and electronic presentation skills. The minimum required amount of time to teach this course is sixty clock hours or one semester.

355910　　Input Technologies
Grade Level:　5 (NO CREDIT)
Input Technologies is a course designed to provide students with the necessary foundation skills to be successful in a technology enriched world. The minimum required amount of time to teach this course is forty minutes per week or its equivalent during the school year.

378920　　Introduction to Business Communications and Technology
1 Semester　Grade Levels:　7-8 (NO CREDIT)
Introduction to Business Communications and Technology is the first semester of a two-semester foundation sequence designed to provide students with the necessary foundation skills to be successful in a technology enriched world. Word processing skills will be expanded as well as the introduction to basic spreadsheet functions and manipulation. The minimum required amount of time to teach this course is sixty clock hours or one semester.

399040　　Computer Technology:　Introduction
1 Semester　Grade Levels:　7-8 (NO CREDIT)
Computer Technology:　Introduction is a one-semester course designed to prepare seventh- and eighth-grade students with an introduction to computers and business applications that are necessary to live and work in a technological society. Emphasis is given to data entry, computer concepts and operations, programming and design, computer software, implications of technology in society, and ethics. The course is designed to provide students with an understanding of the business, industrial, and scientific areas in which the computer is used.

399050　　Keyboarding (grades 7-8)
1 Semester　Grade Levels:　7-8 (NO CREDIT)
Keyboarding is a one-semester course designed to help students develop speed and accuracy by learning the touch operation of alphanumeric/keyboard characters. Emphasis is placed on the following:　mastery of the keyboard with desirable keyboarding techniques; development of speed and accuracy; basic problem-solving applications of centering and arranging reports, letters, and tables; proofreading; formatting; and proper care of the equipment. Keyboarding is a foundation for developing entry-level skills for business careers.

399060　　Keyboarding Applications (grades 7-8)
1 Semester　Grade Levels:　7-8 (NO CREDIT)
Keyboarding Applications is a one-semester course designed to further develop keyboarding skills. Emphasis is placed on the following:　developing speed and accuracy; proofreading; producing mailable copy from rough drafts; preparing handwritten and statistical documents; and improving production of various types of business communications. Keyboarding Applications provides the skills and knowledge necessary for entry-level employment for business careers.

366910　　Technology Communications
Grade Levels:　6 (NO CREDIT)
Technology Communications is a course that continues to develop the technology skills learned in the 5th grade. Word processing skills will be expanded as well as the introduction to basic spreadsheet functions and manipulation. The minimum required amount of time to teach this course is forty minutes per week or its equivalent during the school year.

ACE Prior Approval Middle School Courses

399020　　ACE-Approved Computer Applications I (grade 8)
1 Semester　Grade Level:　8
Computer Applications I is a half-unit course designed to provide students with the fundamental computer skills necessary to do well in high school and in virtually all jobs today. In the area of word processing, students will learn the fundamental skills necessary to create and edit the most widely used documents and use the most commonly used features of a word processor, such as bullets, numbered lists, special characters, borders and shading, fonts, and paragraph and line searching. The fundamentals in use of scanners, graphics, and Word Art are applied to documents. Internet searching skills and citing Internet sources are stressed with these applied to a simple PowerPoint presentation. In the area of spreadsheets, students will be expected to create and edit simple spreadsheets, using basic formulas and functions, and create a simple graph or chart. Districts desiring to implement this course should request approval from the Business/Marketing Education Office.

399010   ACE-Approved Information Technology: Fundamentals
1 Semester   Grade Levels: 7-8 (NO CREDIT)
Information Technology: Fundamentals will provide students with the opportunity to learn about computer and networking information and to practice these basic technological concepts. This is not an industry-level certified course but rather an opportunity to assist in making immediate course selections and future career choices and gaining an exposure to technical life skills.

399230   ACE-Approved Keyboarding (grades 5-6)
Grade Levels: 5-6 (NO CREDIT)
Keyboarding is a nine-week course designed to help students develop speed and accuracy by learning the touch operation of alphanumeric/keyboard characters. Emphasis is placed on the following: mastery of the keyboard with desirable keyboarding techniques; development of speed and accuracy; and proper care of the equipment. Keyboarding is foundation for developing entry-level skills for business careers.

399240   ACE-Approved Keyboarding Connections (grades 7-8)
1 Semester   Grade Levels: 7-8 (NO CREDIT)
While improving keyboarding skills, students will improve their writing and literacy skills by composing and typing business documents such as letters and memos. Students will compose and type reports and will be introduced to basic word processing skills. This class is designed to help prepare students for the state benchmark test as students will compose their own response to written work and learn to organize their thoughts by using graphic organizers. (ACE approval needed.)

BUSINESS/MARKETING TECHNOLOGY

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

Clusters: All
Pathways: All
Programs of Study: All*

Item Name	Count 15 Students	Count 25 Students	Count 25 Students	Specification/ Description
Student Computer System	15	20	25	See ACE Technology Standards – Level 1
Digital camera	1	1	1	
Laser printer	1	1	1	
Media cart (Unless LCD projector is ceiling mounted)	1	1	1	
Scanner	1	1	1	

*Including Marketing Research (Marketing Information Management and Research) and Marketing Management

Cluster: Information Technology
Pathway: Web Design and Digital Communications
Program of Study: Digital Communications (Desktop Publishing, Multimedia, and Web Design)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specification/ Description
Student Computer System	3	4	5	See ACE Technology Standards – Level II
Digital camera	3	4	5	Minimum 8.2 megapixels – Multimedia & Desktop Publishing
Digital video camcorder w/remote microphone and tripod w/hybrid storage capability.	2	2	3	Multimedia
Printer, color laser	1	1	1	Desktop Publishing & Multimedia – color laser or printer/fax/copier/scanner combination
Software (not included in equipment total) – latest version, appropriate to courses being taught (cost varies w/computer lab size & configuration)				Desktop Publishing: Microsoft Office, Corel WordPerfect Office, Illustrator, Adobe InDesign, Adobe PhotoShop; Adobe CS3, or equivalents Multimedia: Dreamweaver, Flash, FrontPage, Studio 8, Animation software, Morphing software, Adobe Premiere, or equivalents Web Design: Expression Web, CS3, Firefox, Internet Explorer, Fireworks

Operational Guide for
Career Exploration and Preparation

CAREER EXPLORATION AND PREPARATION

Why do career planning in your schools?

The Arkansas Department of Education Rules and Regulations Governing Public School Student Services states:

8.0   Documentation of Services

8.01   Each building based school site in all school districts shall submit annual reports indicating services provided through the Student Services Plan to the Department of Education.

8.03   Each school counselor serving students in buildings housing students in grades 8-12 shall provide a career planning process for each student. During the five-year process documentation of the information provided must be maintained as to whether the information was discussed with the student in individual or group settings. Each counselor is to develop a form to document these activities which can be used district-wide. A copy of the form and a statement of how services were provided must be submitted to the Department of Education as part of the annual report required in 8.01.

CAREER ORIENTATION

Course Description

Career Orientation is a one- or two-semester course. It may be offered in the seventh or eighth grade (eighth grade recommended) for a minimum of one semester (60 seat hours) two consecutive nine-week periods in either the first or second semester) and a maximum of two semesters. Refer to Standards.

Career Development must be offered in a computer lab to allow students to use technology applications in researching career planning, preparation, exploration and development as well as organizing/presenting their research findings. Students will be knowledgeable about the world of work, career options, and the personal skills, aptitudes, and expectations to complete the education and training requirements to enter into a future career. Instructors must have the 418 Career Development endorsement.

Course Type and Content

Career Orientation/Career Development is an activity-based career exploration course designed to broaden students' knowledge about careers. The course will consist of instruction in the following areas: (1) self-awareness, (2) career awareness, including the 16 U.S.O.E. career clusters, (3) career planning, education and training, and (4) introduction to employability skills. Students shall receive occupational information from a balance of sources, such as audio-visual aids, computer software, resource speakers, field trips, job shadows, lectures, and applied activities. At the completion of the course, the student shall develop a tentative 6 year- plus education and training career plan.

Course Credit

One-half unit credit for a semester course and one unit credit for a two-semester course should be given Career Orientation students.

Student Organization

A career and technical student organization for Career Orientation is optional. It is recommended that Career Orientation supports existing FCCLA and/or FBLA student organization chapters.

Course Offered

Course Code	Middle School Elective	Units of Credit	7th	8th	9th	10th	11th	12th
399100	Career Orientation		X	X				
399280	Career Development		X	X				

CURRICULUM AND CAREER DEVELOPMENT

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

Career Orientation/Career Development

Item Name	Count	Specification/ Description
Digital Video Camera	1	
Student Computer System	1 per 5 students	See ACE Technology Standards (Access to computer lab preferred)
Ink-jet printer	1	Networked

Based on 15 students in class

CAREER READINESS

Course Description

Career Readiness is a one-semester course offered in grades 9-12. It focuses on career development, interpersonal skills, problem solving, teamwork, communications skills, the use of technology, and self-management. Workplace Readiness is a one-semester course and Career Readiness is a two-semester course which will include all of the KeyTrain curriculum. The on-line computer-based KeyTrain is required to prepare students for the ACT WorkKeys assessments for the Arkansas Career Readiness Certificate.

Students must be at least 17 years of age, successfully pass level four or higher in KeyTrain, and have a Social Security number to take the ACT WorkKeys assessments. The curriculum, assessments and Career Readiness Certificate are provided free of charge to the school and to the student.

Course Type

Career Readiness is a course that teaches the skills and attributes needed to succeed in the changing workplace through video, computer, printed lessons and self-paced Internet-based applied learning.

Course Content

The course content shall reflect the Workplace Readiness framework approved by ACE.
- Basic skills in applied reading, writing, mathematics, listening, observation, speaking, and locating information.
- Interpersonal skills in self-management, creative thinking, critical thinking, decision-making and problem solving.
- Workplace skills in business etiquette, communication, work habits, work effectiveness, leadership, and business writing
- Employability skills in job search and job application

- Career portfolio development

Eligibility of Student

Students in Career Readiness shall be in grades 9-12.

Course Credit

One-half unit credit for a semester course should be given Workplace Readiness students.
One unit of credit for a two semester course should be given Career Readiness students.

Course Offered

Course Code	Course	Units of Credit	7th	8th	9th	10th	11th	12th
493900	Career Readiness	1			X	X	X	X

Career Readiness

Item Name	Count	Description/ Specification
Student Computer System	1 per student	See ACE Technology Standards
Digital Video Camera	1	
Printer	1	Networked
Scanner/FAX/Copier	1	

Based on 15 students in class

INTERNSHIP

Course Description

The internship course is designed to assist students in their specific career focus areas and to help them successfully transition from school to career. Students who expect to begin their careers immediately upon high school graduation as well as those who need to complete post-secondary training prior to starting a career can benefit from the course. The structure includes a strong business partnership that links the course and its participants to current resources, information, and guidance from industry professionals. It provides intense, competency-based classroom and work-site instruction specifically tailored to meet the needs of individual students. It also fosters articulation of programs between high schools and post-secondary education, credit-granting institutions, and apprenticeship programs. A post-graduation monitoring system is incorporated that identifies and addresses graduates' ongoing needs as they advance toward their identified career goals.

Course Type

Internship is a course designed to serve 11th- and 12th-grade students who are in good academic standing and have completed at least two units in a chosen career focus area. The entire course, which includes both classroom and work-site instruction, helps students successfully transition from school to work.

Interns receive guided classroom and guided work-site instruction that is competency-based and incorporates academics and applied learning activities. Each classroom and work-site competency an intern successfully completes is documented and placed in a portfolio. The intern receives the portfolio upon completion of the internship course.

Classroom Instruction

The classroom portion of the internship course focuses on teaching students the basic skills required by all employers. Interns are individually assessed, and weak areas are addressed while strong areas are reinforced. The KeyTrain curriculum is recommended to prepare students for the ACT WorkKeys assessments to help them earn the Arkansas Career Readiness Certificate.

- Basic skills in applied reading, writing, mathematics, listening, observation, speaking, and locating information.
- Interpersonal skills in self-management, creative thinking, critical thinking, decision-making and problem solving.
- Workplace skills in business etiquette, communication, work habits, work effectiveness, leadership, and business writing
- Employability skills in job search and job application

Work-site instruction – Individual work sites must be approved by the internship coordinator. Written agreements shall be established between the school and the work site that outlines appropriate course delivery prior to student placement. Work-site instruction is guided by the employer and directly relates to the student's identified career focus. Compensation is negotiated for each intern and based on fair labor standards. Non-paid internships are allowed but must be approved by program management staff.

Length of Course

1. Students shall complete between 180 hours and 720 hours of instruction.
2. Maximum length of enrollment in the internship course shall be two consecutive years.
3. Length of course shall be determined by the needs of the individual student. A specific plan shall be established for each intern that outlines the intern's planned experiences and expectations as they directly relate to his/her chosen career focus area.

Eligibility of Students

1. Students must be at least 16 years of age in order to meet labor law requirements.
2. Students shall apply for acceptance to the internship course. Minimum guidelines for acceptance include:

An identified career focus on file:

a. Completed at least two units of an identified career major;
b. Academic standing of at least 2.0 on a 4.0 scale;
c. Acceptable attendance record as determined by the school administration;
d. Written recommendations from a counselor, a teacher in the student's career major area, a teacher outside the student's career major, and two personal references from non-relatives;
e. Membership in a student organization that reflects intern's career goals and enhances his/her ability to excel in a chosen career focus area.

Course Credits

1. Interns should be expected to complete at least 18 hours of coordinator classroom instruction and 180 hours of work-site (work-based learning) study in order to receive one credit.
2. Interns should receive two credits with a minimum of 36 hours of classroom instruction and 360 hours of work based learning in the work site.
3. A maximum of four credits for completing 72 hours of coordinator contact and 720 hours worksite study within a consecutive two-year period.

Student Organization

Although a specific student organization does not exist for interns, the internship course is designed to support the guidelines, goals, and objectives of all student organizations. Interns are required to hold membership in the student organization that represents their individual career focus area, if one is available.

Course Code	Course	Units of Credit	7th	8th	9th	10th	11th	12th
493860	Internship	1					X	X

Internship

Item Name	Count	Description/ Specification
Student Computer System	1 per student	See ACE Technology Standards
Digital Video Camera	1	
Printer (Instructor)	1	
Scanner/copier/FAX	1	
Telephone	1	
Printer		Networked

Based on 15 Students in class

KEYSTONE

Course Description

Keystone courses are designed to help ninth or tenth grade students make smooth transitions from middle school or junior high to high school. The course follows a framework that is customized by faculty members to meet the needs of individual project sites.

Although keystone courses originated as an orientation course for schools implementing career academies, they may be adapted for use in regular high school settings.

Keystone has several purposes that include:
- Decreasing the number of disciplinary referrals
- Lowering drop-out rates
- Raising test scores
- Improving career planning and development
- Increasing student involvement in school activities, clubs, and community service
- Increasing student enrollment in higher level academic coursework and/or skills attainment
- Promoting sound career development planning

Minimum required activities are
- An orientation process that introduces students to the school's offerings, faculty, activities, clubs, rules, and regulations
- Career exploration that builds on the students' Career Orientation experience and incorporates:
  - Job shadowing or mentoring
  - Career/college fair
  - Guest speakers
  - Supervised field trips to business and industry sites
  - Parent/student educational/career development conferences
  - Continuation of four- to six-year academic/career planning process

The plan shall be submitted to ACE and address the following topics:
- Establish the mission/goals for the course
- Establish the nonnegotiable components
- Outline the orientation course
- Outline the career exploration component
- Define the workplace skills to be taught
- Design how career planning will be incorporated
- Establish the framework
- Establish the time frame

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- Select and/or design appropriate bell-to-bell activities/curriculum for the course
- Identify resources and support
- Establish monthly meeting schedule
- Establish schedule for career exploratory activities
- Establish a division of responsibilities for further curriculum/activity development
- Establish a follow-up method to record student data regarding improvement in areas of concern
- Establish a goal and method of recruiting and training teachers
- Establish a date and method for evaluating course

Curriculum/Content Framework

Each keystone course shall establish a framework as part of the plan submitted to ACE.
Classroom instruction shall follow the plan submitted to ACE by the school district.

Length of Course (based on plan submitted to ACE)

Minimum length – one semester (Schools on block schedules can modify the length of time to conform to the school's schedule; modification should be reflected in the plan submitted to ACE.)

Course Credits (based on a standard schedule)

Students shall receive .5 credit for completing a full-semester keystone course.

Course Code	Course	Units of Credit	7th	8th	9th	10th	11th	12th
District must seek ACE prior approval before implementation								
493850	Keystone	.5			X	X		

Keystone

This is a suggested equipment list. The count for equipment should be adapted to meet individual program needs. Any purchase variations must first be approved by the Career Guidance, Exploration, and Preparation ACE Program Coordinator.

Item Name	Count	Description/ Specification
Digital Video Camera	1	
Student Computer System	1 per 5 students	See ACE Technology Standards
Printer	1	
Scanner	1	

Based on 15 students in class

SENIOR SEMINAR

Course Description

Schools may apply to start ACE-Approved Career Cluster Senior Seminar (capstone courses) to support any approved career and technical area of study. Areas that have traditionally been considered academic may also be served with a senior seminar course as long as the program of study is approved by ACE. This may include coursework such as journalism, law, art, drama.

The senior seminar course is designed for seniors who are in the process of completing a program of study in any approved career and technical career area. The content is intended to facilitate the student's transition from school to work or higher education. The purpose is to strengthen skills in the areas of research, academics, SCANS skills, and oral presentation skills as they relate to the students' chosen area of study. It is also designed to enhance their ability to demonstrate learned

skills. The course allows students to synthesize learned information through the use of career scenarios.

The course shall include
- Basic skills in applied reading, writing, mathematics, listening, observation, speaking, and locating information.
- Interpersonal skills in self-management, creative thinking, critical thinking, decision-making and problem solving.
- Workplace skills in business etiquette, communication, work habits, work effectiveness, leadership, and business writing
- Employability skills in job and college search and application
- A related career-based and contextual experience that reinforces SCANS skills and provides information to complete a senior project in the student's chosen career area,
- An integrative senior project and the development of a career/educational portfolio, and
- Locally preferred objectives as designed by the school. Locally preferred objectives may not supersede those aforementioned.

Curriculum/Content Framework

A framework shall be approved prior to implementing the course. The framework shall follow ACE format and contain those items outlined in the course description. Locally preferred objectives may be added at the discretion of the district, but they may not replace or supersede those required of all senior seminar courses.

Course Credits

ACE-Approved Career Cluster Senior Seminar may be offered for one or two semesters with .5 unit of credit per semester.

Student Organization

Although a specific student organization does not exist for senior seminar students, students shall participate in the student organization that best represents their area of study. The senior seminar course provides leadership instruction and training and may assist students in preparing for competitions and activities associated with their participation in a student organization.

Course Code	Electives	Units of Credit	7th	8th	9th	10th	11th	12th
District must seek ACE prior approval before implementation								
493890	Career Cluster Senior Seminar	.5						X

Senior Seminar

This is a suggested equipment list. The count for equipment should be adapted to meet individual program needs. Any purchase variations must first be approved by the Career Guidance, Exploration, and Preparation ACE Program Coordinator.

Item Name	Program	Description/ Specification
Digital Video Camera	1	
A/V Cart/Media Storage Center	1	
Student Computer System	1 per 5 students	See ACE Technology Standards
Networked Laser Printer	1	
Recording Mic	1	
Scanner	1	

Based on 15 students in class

Career Exploration and Preparation Courses

Career Guidance Electives

493890   ACE-Approved Career Cluster Senior Seminar
Credit: .5   Grade Levels: 12th

This class will enhance existing programs of study by offering students opportunities for program of study technical research, academic integration, business and industry interaction, oral presentation, and demonstration of learned skills. This class should allow students to synthesize learned information through the use of career scenarios.   It focuses on the SCANS competencies with emphasis on problem solving, teamwork, communication skills, applied math, literacy, and technology. This class may be offered for one or two semesters with .5 credit per semester.

493850   ACE-Approved Keystone (9-10)
Credit: .5   Grade Levels: 9-10

This program is designed to help first-year high school students (9th-10th grade) make smooth transitions to high school. The program is customized by faculty members to meet the needs of individual project sites. The purpose of the program is to decrease the number of disciplinary referrals, lower drop-out rates, raise test scores, increase student involvement in school activities, and promote sound career development planning. Although keystone programs originated as orientation programs for schools implementing academies, they may be adapted for use in the regular school environment.

493910   Career Ready 101 Online
Credit: .5   Grade Levels 9-12

This is a course offered totally online for high school students in grades 11-12. This course is .5 credits and can be used as an elective toward completer status in any of the career and technical programs of study. The curriculum for this course is the same as Career Readiness (493900) with the addition of the WorkKeys skills of reading for information, locating information, and applied mathematics from College and Career Readiness (493880).

493900   Career Readiness
Credit: 1   Grade Levels: 9-12

This two-semester replaces College and Career Readiness/Workplace Readiness. Applied Technology is taught in addition to the knowledge and skills competencies taught in Career Readiness. It counts as one credit and can be used as an elective toward completer status in any of the career and technical programs of study. The on-line computer-based KeyTrain curriculum is required to help students prepare for the ACT WorkKeys assessments to earn the Arkansas Career Readiness Certificate.

493880   College and Career Readiness
Credit: .5   Grade Levels: 9-12

This one semester course is an instruction-based course designed to help students transition from school to work or the next level of education and training. It focuses on the SCANS competencies with emphasis on problem solving, teamwork, communication skills, interpersonal skills, employability skills, self-management, applied math, literacy, locating information and career readiness. It counts as one-half unit of credit and can be used as an elective toward completer status in any of the career and technical programs of study. Students may earn the Arkansas Career Readiness Certificate upon completion by taking the ACT WorkKeys assessments in Reading for Information, Applied Math, and Locating Information.

493860   Internship
Credit: 1   Grade Levels: 11-12

This is a practical and supervised job experience designed to assist students to successfully transition from school-to-work or successfully continue their education in a chosen program of study or career focus area. Internships are individualized and competency-based. It focuses on the SCANS competencies with emphasis on problem solving, teamwork, communication skills, applied math, literacy, and technology. It counts as one unit of credit toward completer status in any of the career and technical programs of study. Interns may receive 1 unit of credit for completing a minimum of 180 hours of internship and 18 hours of coordinator contact. Interns shall be limited to 4 credits for completing at least 720 hours of internship credit and 72 hours of coordinator contact within a consecutive two-year period.

Operational Guide for
Family and Consumer Sciences Education

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Pathway	**Program of Study**
Cluster: EDUCATION & TRAINING	
Teaching & Training	Education & Training

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Pathway	**Program of Study**
Cluster: HOSPITALITY & TOURISM	
Restaurant & Food and Beverage Services	Culinary Arts
Restaurant & Food and Beverage Services	Food Production, Management, & Services
Lodging	Lodging Management

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Pathway	**Program of Study**
Cluster: HUMAN SERVICES	
Consumer Services	Consumer Services
Early Childhood Development & Services	Child Care Guidance, Management, & Services
Personal Care Services	Cosmetology
Family & Community Services	Family & Consumer Sciences Education

CAREER CLUSTERS: EDUCATION AND TRAINING, HOSPITALITY AND TOURISM, HUMAN SERVICES

Program Description

FACS prepares students for family and work life as well as careers in family and consumer sciences. FACS programs provide opportunities to develop knowledge, skills, attitudes, and behaviors that strengthen individuals and families, leading to responsible citizenship and leadership. Programs promote nutrition and wellness, resource management, and life management skills that enable students to function effectively as providers and consumers of goods and services. The critical and creative thinking skills promoted in FACS prepares students to solve complex problems in the diverse environments of a global economy.   Students develop employment and career plans with a focus on accountability, as they learn to accept responsibility for actions and personal success.

Family and Consumer Science offers sequential career focus programs of study in multiple pathways correlated to national standards. Students are encouraged to obtain state and/or national certifications in conjunction with FACS programs.

Occupational Programs

Occupational FACS courses are designed to assist students in the development of skills that will enable them to secure employment and advance in a chosen family and consumer sciences career. Occupational programs include:

- Education and Training
- Culinary Arts
- Food Production, Management, and Services
- Lodging Management

- Child Care Guidance, Management, and Services
- Consumer Services
- Cosmetology

Career and Technical Student Organization (CTSO)

Family, Career, and Community Leaders of America (FCCLA) shall be an integral part of the FACS instructional program at each school. All local chapters shall affiliate annually, following the guidelines, goals, and objectives of the district, state, and national organization. The Education and Training program of study shall utilize FCCLA as the CTSO. A Future Educators of America (FEA) chapter may also be chartered annually. If the Education and Training program core course, Orientation to Teaching, is taught by a licensed teacher other than FACS, an FEA chapter shall be chartered annually. Cosmetology programs shall affiliate annually as part of a SkillsUSA student organization.

Pathways and Programs of Study by Career Cluster

Education & Training Cluster

Planning, managing, and providing education and training services and related support services

Teaching and Training Pathway
Education and Training Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493020	Child Development	.5			X	X	X	X
493240	Orientation to Teaching I	1				X	X	X
Options								
493080	Family & Consumer Sciences	1			X	X	X	X
493150	Human Relations	.5			X	X	X	X
493160	Leadership & Service Learning	.5			X	X	X	X
493290	Orientation to Teaching II	1					X	X
493210	Parenting	.5			X	X	X	X
ADE or other ACE courses may be used as additional options with prior approval from the FACS program manager.								

Hospitality & Tourism Cluster

Hospitality and tourism encompasses the management, marketing, and operations of restaurants and other food services, lodging, attractions, recreation, and travel-related services

Restaurants, Food & Beverage Services
Culinary Arts Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493250	Introduction to Culinary Arts	.5			X	X		
493260	Culinary Arts I	1				X	X	X
493270	Culinary Arts II	1				X	X	X
Options								
493080	Family & Consumer Sciences	1			X	X	X	X
493110	Food & Nutrition	.5			X	X	X	X
493160	Leadership & Service Learning	.5			X	X	X	X
493200	Nutrition & Wellness	.5			X	X	X	X
493220	ProStart I	1					X	X
493230	ProStart II	1					X	X
493130	Chemistry of Food	.5				X	X	X
493330	Entrepreneurial Experience	1				X	X	X
493070	Food Safety	.5			X	X	X	X

Food Production, Management, and Services Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493110	Food & Nutrition	.5			X	X	X	X
493120	Food Production, Management, & Services	1				X	X	X
Options								
493250	Introduction to Culinary Arts	.5			X	X		
493080	Family & Consumer Sciences	1			X	X	X	X
493160	Leadership & Service Learning	.5			X	X	X	X
493200	Nutrition & Wellness	.5			X	X	X	X
493220	ProStart I	1					X	X
493230	ProStart II	1					X	X
493130	Chemistry of Food	.5				X	X	X
493330	Entrepreneurial Experience	1				X	X	X
493070	Food Safety	.5			X	X	X	X

Travel & Tourism Pathway
Lodging Management Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493140	Housing & Interior Design	.5			X	X	X	X
493170	Lodging Management I	1					X	X
493180	Lodging Management II	1					X	X
Options								
493080	Family & Consumer Sciences	1			X	X	X	X
493160	Leadership & Service Learning	.5			X	X	X	X
491990	Financial Literacy	.5			X	X	X	X
493330	Entrepreneurial Experience	1				X	X	X

Human Services Cluster

Preparing individuals for employment in career pathways that relate to families and human needs

Consumer Services Pathway
Consumer Services Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
491990	Financial Literacy	.5			X	X	X	X
493320	Customer Relations	.5					X	X
493310	Consumer Services	1					X	X
Options								
493080	Family & Consumer Sciences	1			X	X	X	X
493140	Housing and Interior Design	.5			X	X	X	X
493150	Human Relations	.5			X	X	X	X
493160	Leadership & Service Learning	.5			X	X	X	X
493030	Clothing Management	.5			X	X	X	X
493330	Entrepreneurial Experience	1				X	X	X
493070	Food Safety	.5			X	X	X	X

Early Childhood Development & Services Pathway
Child Care Guidance, Management, and Services Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493020	Child Development	.5			X	X	X	X
493210	Parenting	.5			X	X	X	X
493010	Child Care Guidance, Management, & Services	1				X	X	X
Options								
493080	Family & Consumer Sciences	1			X	X	X	X
493100	Family Dynamics	1			X	X	X	X
493150	Human Relations	.5			X	X	X	X
493160	Leadership & Service Learning	.5			X	X	X	X
491990	Financial Literacy	.5			X	X	X	X
493200	Nutrition & Wellness	.5			X	X	X	X
493070	Food Safety	.5			X	X	X	X

Family & Community Services Pathway
Family and Consumer Sciences Education Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493080	Family & Consumer Sciences	1			X	X	X	X
Options								
491990	Financial Literacy	.5			X	X	X	X
493150	Human Relations	.5			X	X	X	X
493020	Child Development	.5			X	X	X	X
493210	Parenting	.5			X	X	X	X
493160	Leadership & Service Learning	.5			X	X	X	X
493100	Family Dynamics	1			X	X	X	X
493200	Nutrition & Wellness	.5			X	X	X	X
493030	Clothing Management	.5			X	X	X	X
493110	Food & Nutrition	.5			X	X	X	X
493130	Chemistry of Food	.5				X	X	X
493140	Housing & Interior Design	.5			X	X	X	X
493330	Entrepreneurial Experience	1				X	X	X
493070	Food Safety	.5			X	X	X	X

Personal Care Services Pathway
Cosmetology Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494550	Cosmetology I	1					X	X
494570	Cosmetology II	2					X	X
Options								
494560	Cosmetology Lab	1					X	X

Special Certification and Licensure Requirements:

1. Meet the licensure requirements for career and technical permits.
2. Licensed by the Arkansas State Board of Cosmetology
3. Hold a current cosmetology instructor's license issued by the Arkansas State Board of Cosmetology

FAMILY AND CONSUMER SCIENCES COURSES:

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
493010	Child Care Guidance, Management, & Services	1				X	X	X
493020	Child Development	.5			X	X	X	X
493030	Clothing Management	.5			X	X	X	X
493060	Clothing Management II	.5			X	X	X	X
493310	Consumer Services	1					X	X
494550	Cosmetology I	1					X	X
494570	Cosmetology II	2					X	X
494560	Cosmetology Lab (Cosmetology programs only)	1					X	X
493260	Culinary Arts I	1				X	X	X
493270	Culinary Arts II	1				X	X	X
493320	Customer Relations	.5					X	X
493330	Entrepreneurial Experience	1				X	X	X
493080	Family & Consumer Sciences	1			X	X	X	X
493100	Family Dynamics	1			X	X	X	X
493110	Food & Nutrition	.5			X	X	X	X
493140	Housing & Interior Design	.5			X	X	X	X
493150	Human Relations	.5			X	X	X	X
493250	Introduction to Culinary Arts	.5			X	X		
493170	Lodging Management I	1					X	X
493180	Lodging Management II	1					X	X
493200	Nutrition & Wellness	.5			X	X	X	X
493240	Orientation to Teaching I	1				X	X	X
493290	Orientation to Teaching II	1					X	X
493210	Parenting	.5			X	X	X	X
491990	Financial Literacy	.5				X	X	X

Course Code	ACE Prior Approval Courses	Units of Credit	7th	8th	9th	10th	11th	12th
District must seek ACE prior approval before implementation								
493280	ACE Approved Family & Consumer Sciences	1			X	X	X	X
590060	ACE Approved Family & Consumer Sciences	1			X	X	X	X
493130	Chemistry of Food	.5				X	X	X
493160	Leadership & Service Learning	.5			X	X	X	X
493200	Nutrition & Wellness	.5			X	X	X	X
493220	ProStart I	1					X	X
493230	ProStart II	1					X	X
493330	Entrepreneurial Experience	1				X	X	X
493070	Food Safety	.5			X	X	X	X

Course Code	Middle School Courses	Units of Credit	7th	8th	9th	10th	11th	12th
399070	Family & Consumer Sciences (8th Grade)	0		X				
399080	Family & Consumer Science Investigation	0	X	X				
399090	Leadership & Service Learning	0	X	X				
399260	Exploring Personal Finance	0	X	X				

CAREER CLUSTERS: EDUCATION & TRAINING, HOSPITALITY & TOURISM, HUMAN SERVICES (all pathways)

493280   ACE-Approved Family & Consumer Sciences
Credit: 1   Grade Levels: 9-12
This is an individually approved course in family & consumer sciences education submitted by the district.

590060   ACE-Approved Family & Consumer Sciences
Credit: 1   Grade Levels: 9-12
This is an individually approved course in family & consumer sciences education submitted by the district.

493130   Chemistry of Food
Credit: .5   Grade Levels: 10-12
Using scientific methods and laboratory experiments, students will study the relationships between food science, nutrition, and food preparation. Students will measure, record, and analyze data, exploring topics related to food science, including mixtures, microbiology, food preservation, and complex food systems.

493010   Child Care Guidance, Management, & Services
Credit: 1   Grade Levels: 10-12
This course is designed to provide students with information and experiences in the occupational field of child care and guidance, management, and services. Upon completion of this course, students will have a better understanding of children and their development. Students will enhance employability skills that will be transferrable across all career pathways.

493020   Child Development
Credit: .5   Grade Levels: 9-12
Focuses on skills needed to guide the physical, intellectual, emotional, and social development of children. Upon completion of this course, the student should be prepared to care for and guide the development of a child through all stages of growth—within a family, as child care professional, or in other experiences with children.

493030   Clothing Management
Credit: .5   Grade Levels: 9-12
This course is designed to assist students in developing the skills to manage individual and family wardrobes, to develop decision-making skills as a clothing consumer, and for understanding the role of the clothing and textile industry in the economy.

493060   Clothing Management II
Credit: .5   Grade Levels: 9-12
Course enhances student's skills with in-depth experiences using advanced sewing techniques. Students will acquire the knowledge and skills necessary to design and construct projects culminating in the development of a professional portfolio.

493310   Consumer Services
Credit: 1   Grade Levels: 11-12
Consumer Services is a project-based course that introduces applications within the consumer service industry. Students will obtain broad-based knowledge of consumer products and industry equipment, demonstrate product/equipment features, and recognize and apply current ethical and legal practices in consumer services.

493260   Culinary Arts I
Credit: 1   Grade Levels: 10-12
This course is designed to provide students with an in-depth study of the professional kitchen and culinary applications. A prerequisite to this course is Introduction to Culinary Arts.

493270   Culinary Arts II
Credit: 1   Grade Levels: 10-12
A continuation of Culinary Arts II, this course is designed to provide students with advanced culinary applications, service, and presentation.

493320   Customer Relations
Credit: .5   Grade Levels: 11-12
Through the use of technology, students will evaluate information used to attract and retain customers, provide customer satisfaction, and mange customer relations. Students will apply principles and processes to meet customer expectations, with an emphasis on communication skills that promote positive customer interactions. Students will have an opportunity to obtain industry certification as a part of this course.

493330   Entrepreneurial Experience
Credit: 1   Grade Levels: 10-12
A school-based enterprise in which students research market demands to identify the need for a product or service, subsequently creating, producing and marketing that product or service. Students assess the characteristics of entrepreneurs, developing a business model that tracks a product/service from idea to consumer. Students are encouraged to launch individual entrepreneurial effort.

493080   Family & Consumer Sciences
Credit: 1   Grade Levels: 9-12
Course is designed to provide students with basic information and skills to function effectively within the family and within a changing, complex society. Students will develop basic life skills that promote a positive influence on quality of life.

493100   Family Dynamics
Credit: 1   Grade Levels: 9-12
Focuses on the role of the family in helping individuals develop to their highest potential, in strengthening the community, and in addressing concerns of a global society.

491990   Financial Literacy
Credit: .5   Grade Levels: 9-12
This one-semester course designed to increase financial literacy and prepare students to successfully manage financial resources. This course also focuses on the individual's role and financial responsibilities as a student, citizen, consumer, and active participant in the business world. Emphasis is also placed on activities and competitions within career and technical student organizations (i.e., FBLA, FCCLA, and DECA). **(This course replaces 492240 Introduction to Finance.)**

493110   Food & Nutrition
Credit: .5   Grade Levels: 9-12
This course focuses on the developing the skills to select, prepare, and serve food that meets the nutritional needs of individuals and families. Students will apply sound nutritional practices that will have a positive effect on overall health.

493120   Food Production, Management, & Services
Credit: 1   Grade Levels: 10-12
Emphasis is given to the development of competencies related to employability; technology in food production, management, and services; sanitation and safety; nutrition as related to food service; serving of food; purchasing, receiving, and storing of food supplies; production and management of food; use, care, and storage of large and small commercial food service equipment; menu planning; and modified diets.

493070   Food Safety
Credit: 1   Grade Levels: 10-12
Focuses on the development of essential food safety practices necessary to select, receive, store, prepare, and serve food. Students will create and implement food safety procedures based on the FDA Food Code and local regulations to apply sound sanitation practices. Skills are applicable to the Arkansas Safe Food Handler and National Restaurant Association ServSafe Certifications.

493140   Housing & Interior Design
Credit: .5   Grade Levels: 9-12
Course focuses on personal and family housing needs, preparing students to make wise decisions in obtaining and maintaining a home. Students will explore the principles of design as applied to housing, as well as the many careers available in housing and design.

493150   Human Relations
Credit: .5   Grade Levels: 9-12
Focuses on developing skills needed to build and maintain successful relationships in the home, community, and workplace. Students will develop an understanding of self, practice effective communication skills, and establish and maintain effective relationships with family members, peers, and others.

493250   Introduction to Culinary Arts
Credit: .5   Grade Levels: 9-12
This course is designed to provide students with basic knowledge and understanding of culinary arts, covering such topics as basic cooking techniques, menu planning, nutrition, culinary math, safety, and sanitation. This course is a prerequisite to Culinary Arts I and Culinary Arts II.

493160　Leadership & Service Learning (9-12)
Credit: .5　Grade Levels: 9-12
Course emphasizes the importance of leadership skills, volunteerism, and professionalism in the development of personal qualities. It focuses on the benefits of community service, leadership roles, and civic responsibilities.

493170　Lodging Management I (FACS)
Credit: 1　Grade Levels: 11-12
Lodging Management I is the first part of a two-year, industry-based program that prepares students for careers in the hotel/resort industry. Upon completion of the course, successfully passing the Lodging Management exam, and completion of a hospitality internship, the student can receive national HBA/Lodging Management certification.

493180　Lodging Management II (FACS)
Credit: 1　Grade Levels: 11-12
Lodging Management II is the second part of a two-year, industry-based program that prepares students for careers in the hotel/resort industry. Upon completion of the course, successfully passing the Lodging Management exam, and completion of a hospitality internship, students can receive national HBA/Lodging Management certification.

493200　Nutrition & Wellness
Credit: .5　Grade Levels: 9-12
Nutrition and Wellness emphasizes the interaction of nutrition, foods, sports, and exercise for lifelong fitness and well-being of individuals and families.

493240　Orientation to Teaching I
Credit: 1　Grade Levels: 10-12
Course is designed to provide students with knowledge to prepare them as future teachers. Students will develop an understanding of their role as a teacher, research the developmental characteristics of learners, identify effective teaching strategies, and creatively deliver lessons. Educational issues, policies, and practices will be examined. Districts desiring to implement this course should request approval from the Office of Family & Consumer Sciences.

493290　Orientation to Teaching II
Credit: 1　Grade Levels: 11-12
Orientation to Teaching II integrates psychological, sociological, and philosophical foundations which prepare students for positive field experiences. Course encourages prospective teachers to become responsible, professional, and ethical as they explore the teaching profession. Students will develop a working knowledge of and employability skills for the education profession, as they work toward paraprofessional certification.

493210　Parenting
Credit: .5　Grade Levels: 9-12
Course is designed to assist students in developing an understanding of the parenting process and of positive parenting skills. Students will develop the skills necessary to provide quality care for children, both as a parent and as a child caregiver.

493220　ProStart I
Credit: 1　Grade Levels: 11-12
ProStart I is the first part of a two-year, industry-based program that prepares students for careers in the restaurant and food service industry. After completion of ProStart I, students have the option to take ProStart II, complete 400 hours of hospitality-related work experience, take and pass the ProStart exam, and receive national HBA/ProStart certification.

493230　ProStart II
Credit: 1　Grade Levels: 11-12
ProStart II is the second part of a two-year, industry-based program that prepares students for careers in the restaurant and food service industry. Upon completion of ProStart I & II, 400 hours of hospitality-related work experience, and successfully passing the ProStart exam, students can receive national HBA/ProStart certification.

Cosmetology

494550　Cosmetology I
Credit: 1　Grade Levels: 11-12
This two-semester instructional program prepares the individual to begin achieving the basic competencies necessary to begin a program of study in cosmetology.

494570　Cosmetology II
Credit: 2　Grade Levels: 11-12
The course allows the completion of the 1,500 hours of training and instruction required to be eligible for the State Board of Cosmetology licensing examination.

494560   Cosmetology Lab
Credit: 1   Grade Levels: 11-12
This production-based program is designed to allow students to develop the skills and knowledge needed to execute a comprehensive cosmetology product.

Middle School Courses

399070   Family & Consumer Sciences (8th grade)
2 Semesters Grade Level: 8 (NO CREDIT)
Course is designed to provide students with basic information and skills needed to function effectively within the family and within a changing, complex society. Upon completion of this course, the student should have developed basic life skills that promote a positive influence on the quality of life.

399080   Family & Consumer Science Investigation (Family CSI)
1 Semester   Grade Levels: 7-8 (NO CREDIT)
This semester course emphasizes competencies related to Family, Career and Community Leaders of America; personal and family development; relationships; home environment; food and nutrition; wellness; resource management; responsible child care; clothing and appearance; and career preparation.

399090   Leadership & Service Learning (7-8)
1 Semester   Grade Levels: 7-8 (NO CREDIT)
This course emphasizes the importance of leadership skills, volunteerism, and professionalism in the development of personal qualities. It focuses on the benefits of community service, leadership roles, and civic responsibilities. Current technology is used to enhance communication skills and promote professionalism.

399260   Exploring Personal Finance
1 Semester   Grade Levels: 7-8 (NO CREDIT)
This course introduces students to the knowledge and skills required for managing personal and family financial resources. Emphasis is given to the development of competencies related to values, needs, and wants, goals and decision making, career exploration, understanding paychecks, spending plans, savings, electronic banking and credit, financial institutions, and checking accounts.

FAMILY AND CONSUMER SCIENCES EDUCATION

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

Career Cluster: Human Services
Pathway: Early Childhood Development & Services
Program of Study: Child Care Guidance, Management and Services (On Site Lab)

STANDARDS FOR NEW PURCHASES (Effective 1994—Reviewed 2015)

NOTE: *This list does not include basic equipment, presumed to be in an existing FACS department. Purchases on this list are based on an existing childcare facility. Additional items from the FACS department will be used to support this program of study. For a list of these required items, refer to the Family and Consumer Sciences Education Equipment List.*

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Student Computer System	5	7	9	See ACE Technology Standards
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform. (2002)
Laminator	1	1	1	18" - 27"
Ellison Cutter (XL)/Die Cuts	1	1	1	Assorted die cuts
Storytelling Easel	1	2	3	
Binding Machine	1	1	1	
Copier with scan/print/ FAX features	1	1	1	Color, Multi-function
Washer/Dryer Set	1	1	1	Multi-cycle
NOTE: The items below are based on the number of children enrolled in the child care center, NOT high school students enrolled in the FACS program.				
Sink		1		Meets Health Department specifications
Vacuum Cleaner		1		6.5 AMP upright or 3.5 peak HP canister
Teacher Storage		1		Sturdy, locking
Fire Extinguisher		1		Dry, multipurpose
First Aid Kit		1		Locked
Microwave Oven		1		700 watts
Institutional Sink		1		Meets Health Department specifications
Garbage Disposal		1		1HP
Range		1		4-burner, self-cleaning, vented
Refrigerator		1		Two-door refrigerator/freezer, 21 cubic foot, frost-free
Low Hand Washing Lavatory		1		One per 15 children
Low Drinking Fountain		1		One per 15 children
Tot Toilet		1		One per 15 children
Paper Towel Dispenser /Forced Air Dryer		1		One per 15 children
Children's Chair		20		One per child, tip resistant
Children's Table		5		Sturdy, lead-free finish, size adequate for each child to have work space

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
High Chairs		10		One per two children; sturdy construction, lead-free finish, safety strap or center pin
Changing Table & Storage Center		1		Safety rail; washable surface
Feeding Table/Play Table		1		Six-seater
Cribs		20		One per child; must conform to all Consumer Products Safety Commission standards
Infant Swings		10		One per two children, sturdy construction
Activity Center		3		Stationary
Pre-wheel Toys		10		One per two children, (a variety) non-pedaling, safe, sturdy
Adult Rocking Chair		1		One per 6 infants, sturdy, easy to maintain
Storage for Infant/Toddler Supplies		1		Out of children's reach
Infant Mirror		1		Unbreakable
Cots (or mats) with Sheets and Storage		20		Cots-heavy duty standard, 1" 16 gauge aluminum frame, vinyl or canvas cover
Play Equipment Storage Unit		1		
Play Equipment Set (Outdoor)		1		Same as indoor set
Outside Storage		1		To accommodate outside toys
Wheeled Toys		1 set		A set includes ten of the following: pedal toys, punch-pull toys, wagon, tricycle, scooter, wheelbarrow
Covered Sand Box		1		Smooth finish, 6" deep
Rocking Toys		5		Sturdy, safe, lead-free finish
Outdoor Swings		1 set		Meet licensing standards
Outdoor Climber		1		Sturdy, safe
Sports Equipment		1 set		To include soccer, basketball, football, baseball, etc.
Coat Locker		2 (10 lockers each)		Storage with hanging space for each child
Learning Centers with Storage				

Career Cluster: Human Services
Pathway: Early Childhood Development & Services
Program of Study: Child Care Guidance, Management and Services (Pre-Employment Lab)

STANDARDS FOR NEW PURCHASES (Effective 2002—Reviewed 2015)

NOTE: *This list does not include basic equipment, presumed to be in an existing FACS department. Purchases on this list are based on an existing child care facility. Additional items from the FACS department will be used to support this program of study. For a list of these required items, refer to the Family and Consumer Sciences Education Equipment list.*

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Student Computer System	5	7	9	See ACE Technology Standards
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform (2002)
Laminator	1	1	1	18" – 27"
Ellison Cutter (XL)/Die Cuts	1	1	1	Assorted die cuts
Storytelling Easel	1	2	3	
Binding Machine	1	1	1	
Student printer with copy/scan/FAX features	1	1	1	Color, Multi-function
Additional Instructional Equipment	1	1	1	Additional instructional items may be chosen from the FACS On-Site Child Care Equipment List as necessary. These items may not be furniture, structural, or permanently placed in the center.

Career Cluster: Human Services
Pathway: Consumer Services
Program of Study: Consumer Services

STANDARDS FOR <u>NEW PURCHASES</u> (Effective 2015)

NOTE: *This list does not include basic equipment, presumed to be in an existing FACS department. Additional items from the FACS department will be used to support this program of study. For a list of these required items, refer to the Family and Consumer Sciences Education Equipment List.*

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Digital Camera	2	3	4	Multi-function, digital. Case and strap
Digital Video Camcorder	1	2	2	Multi-function with hard drive and 8G memory stick, tripod, case and strap
Student Laptop	1	1	1	See ACE Technology Standards
Student printer with copy/scan/FAX features	1	1	1	Color, multi-function
Document Camera	1	1	1	Multiple settings, base, platform
Poster Printer	1	1	1	
Student Computer System	15	20	25	See ACE Technology Standards
Classroom Set of Financial Calculators	15	20	25	Classroom set equals 1 calculator per student
Calculator	1	2	3	With printing ability
Cash Register	1	2	2	8 character, single line, LED display, drop-in register tape
Classroom Management Software	1	1	1	Allows teacher monitoring and administration of Student Computer System
Headphones	15	20	25	Heavy duty, padded, adjustable
Multi-use convertor	4	5	6	Convertor jack to allow multiple users for MP3 player and mobile computerized pad
Mobile computerized pad	4	5	6	Wi-Fi and 3G accessible; 64 GB; multifunction, interactive with protective cover

Career Cluster: Human Services
Pathway: Personal Care Services
Program of Study: Cosmetology

STANDARDS FOR <u>NEW PURCHASES</u> (Effective 2004—Reviewed 2015)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Student Computer System	5	7	9	See ACE Technology Standards
Computer Printer with copy/scan/FAX feature	1	1	1	See ACE Technology Standards
Computer Software	1	1	1	Cosmetology Imaging Software with photo printer and site license.
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.
Storage Cabinet	6	6	6	For Chemical Storage, sturdy, lockable, adjustable shelves.
Storage Cabinet	3	3	3	Towel storage, multiple shelves
Permit Display Case	1	1	1	Wall mounted glass covered lockable case used to display permits and licensing documents.
Floor Display Case	1	1	1	1 standing product displaces case, lockable with sliding glass doors.
Wall Display Boards	1	1	1	2 Bulletin Boards for advertisements and client information. Additional bulletin board strips for displaying style posters and salon materials.
Lockers	3	4	5	6 lockers per unit, lockable, one per student
Shampoo Bowl	3	3	3	With sprayers
Shampoo Chair	3	3	3	
Facial Chair	2	2	2	With protective covers.
Styling Chair	20	20	25	State Board requires a minimum of 20 stations for an approved site. Hydraulic lift with swivel, with protective covers.
Floor Chair Mats	20	20	25	Cushioned support while standing.
Salon Work Stations	20	20	25	State Board requires a minimum of 20 stations for an approved site. With Mirror and counter space.
Manicure Stool	5	5	5	Adjustable heights, swivel base.
Manicure Station	5	5	5	With Drawers and lamps.
Dryer Chair	10	10	10	
Dryers	10	10	10	
Marcel Stove	1	1	2	Marcel stove with tester, stand and Marcel irons in a variety of sizes.
Towels	12 dozen			15x25, 100% cotton terry cloth, various colors.
Wall Charts	1 set			Large size, full color, tear-resistant, coated paper. To cover all topics for Cosmetology, Esthetics, and Nail Technology.
Tripod Manikin Stands	2	2	2	Manikin stand for demonstrations.
Multi-Function Facial System	1	1	1	Brush, high frequency, vacuum and spray, galvanic, steamer, magnifying lamp.

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Cosmetology Kit	15	20	25	
Manicure/Pedicure Kit	1	1	1	
Dispensary Equipment Kit	1	1	1	
Instructional Manikin Set	15	20	25	Various manikins with different hair types, textures, and colors, 5 extra-long manikins for braiding and long styles. For check out from Dispensary as needed.
Cleaning Kits	1	1	1	
Infection Control Set	1	1	1	
Reference Materials Set	1	1	1	Medical Dictionary, Cosmetology Dictionary, 1 copy of each textbook referenced on the Candidate Information Bulletin (CIB) provided by the National Interstate Council of State Boards of Cosmetology (NIC)
Towel Warmer	1	1	1	Temperature controlled, holds various sizes.
Washer and Dryer	1 each	1 each	1 each	Multi cycles
Cash Register	1	1	1	Digital, lockable
Reception Chairs	5	5	5	
Receptionist Desk	1	1	1	Large work space, drawer storage, lockable
Receptionist Chair	1	1	1	Adjustable, swivel, wheels
Telephone	1	1	1	Touch-tone, plain paper fax, auto redial
Time Clock	1	1	1	Electric, Analog or digital

Career Cluster: Hospitality & Tourism
Pathway: Restaurant and Food & Beverage Services
Program of Study: Culinary Arts

STANDARDS FOR NEW PURCHASES (Effective 2015)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Student Computer System	5	7	9	Must meet current ACE specifications.
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.
36" Commercial Range	1	1	1	Gas or Electric, 2 open burners, 24" griddle with standard oven base, stainless front, sides and backsplash
Convection Oven	1	1	1	Gas or Electric, Single Stack, Solid State Controls, 60/40 independent doors
Dishwasher	1	1	1	Free standing or under counter, built-in electric or gas booster, 30 racks per hour
Ice Maker	1	1	1	Free standing or under counter, built-in bin, 95 -145 lb. Production per 24 hours. Must include 32 oz. ice scoop with either free standing or wall mounted holder.

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Refrigerator	1	1	1	Reach-in, self-contained, stainless steel front, standard depth, full-height door. Exterior dial type thermometer, 1/2 hp compressor, casters
Freezer	1	1	1	Reach-in, self-contained, stainless steel-front, standard depth, full-height door. Exterior dial type thermometer, 1/2 hp compressor, casters
Ventilation Exhaust and Fire Suppression	1	1	1	Stainless steel vent-a-hood, with automatic fire suppression system per local code
Sink	1	1	1	Three compartment, stainless steel with drain board
Disposal	1	1	1	Food Waste Disposal, 1 hp
Dish tables	1	1	1	Fitted for under counter dishwasher, Stainless steel, 20"x20"x8" sink bowl, 9" H backsplash
Pre-Rinse Assembly	1	1	1	Deck or Back-splash Mount
Mixer with Stand	1	1	1	20 qt. Table-top Commercial Mixer, double hook, wire whip and flat beaters. Stainless steel stand, 30"x 36"
Cooks Tables	2	2	2	3'x5' minimum, stainless steel
Food Processor	1	1	1	Commercial, 1.75 hp, with attachments/blades
Kitchen Calculator	6	10	15	5 Hand held models for student use, 1 desk top or hand held model for teacher use. Easy to Read LCD Display, Solar or Battery operated
Food Storage				
Small Equipment				
Top-of-Range Cookware				
Proofing/Holding Cabinet		1		Stainless Steel, Thermostatically Controlled
Kitchen Tools				
Digital Scale		1		15-20 pound high range
Deep fat fryer		1		50 lb. capacity front mount control with filter
Plating & Presentation				
Bakeware				
Safety/Sanitation				

Career Cluster: Education and Training
Pathway: Teaching and Training
Program of Study: Education and Training

STANDARDS FOR <u>NEW PURCHASES</u> (Effective 2004—Revised 2015)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Digital Camera	1	1	1	Multi-function, digital. Case and strap.
Digital Video Recorder with Tripod	1	1	1	Multi-function, digital. Case and strap.
Student Laptop	1	1	1	See ACE Technology Standards
Copy Machine with scan/print/ FAX features	1	1	1	Color, multi-function
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.
Classroom Performance System	1	1	1	System includes Software, 16 or 32 response pad system depending on enrollment, Receiver Unit, and Carrying Case. Software includes Site License.
Laminator	1	1	1	18" - 27"
Ellison Die Cutter	1	1	1	Assorted die cuts, durable, storage system for easy access and security.
Poster Printer	1	1	1	
Student Computer System	5	7	9	See ACE Technology Standards
Photo Printer				(2009)
Portable Easel White Board with Storage	1	2	3	Adjustable (2009)

Career Cluster: Human Services
Pathway: Family and Community Services
Program of Study: Family and Consumer Sciences Education

STANDARDS FOR <u>NEW PURCHASES</u> (Effective 1994—Revised 2015)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Student Computer System	15	20	25	See ACE Technology Standards
Student Printer, color, copy/scan/FAX features	1	1	1	See ACE Technology Standards
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.
Demonstration Table	1	1	1	For clothing or foods demonstrations. Electrical outlet, overhead mirror, and casters.
Garbage Disposals	3	4	5	
Washer and Dryer	1 each	1 each	1 each	Multi cycles
Serger	1	1	2	Differential feed, free arm, 3-5 thread
Sewing Machine	8	10	13	Portable with protective case, sufficient space for setup.

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Stools for Sewing Machine	8	10	13	
Iron and Pressing Equipment Sets	3	4	5	
Cutting Equipment Sets	3	4	5	
Triple Mirror	1	1	1	Full Length
Tote Storage Cabinet	1	1	1	Tote tray storage, hanging space, minimum 30 slots.
Cutting Tables	3	4	5	Sturdy wood or metal (folding with gravity lock slides) 36"X 72"
Range with Vent Hood	3	4	5	Electric or gas, self-cleaning or continuous cleaning, convection feature
Vacuum, Upright	1	1	1	Min. 6.5 AMP. 3.5 peak HP
Refrigerators	2	2	3	19-25 Cubic feet, adjustable shelves, ice maker
Microwave Ovens *	3	4	5	1000-1500 Watts, automatic sensors, turntable, multiple power levels, minimum 1.5 cubic feet interior
Bread maker	1	1	1	Completely automatic, 1 1/2 pound loaf
Dishwashers *	3	4	5	Adjustable upper rack, delay start, multiple cycle, quiet
Stand Mixers	3	4	5	Heavy duty, dough hook, whip and beaters, large and small bowls
Kitchen Tools				
Oven Baking Equipment				
Range Top Cooking Equipment				
Small Electrical Equipment				
Kitchen Linen Sets				
Table Appointments				
Party Appointments				

*One built in kitchen unit is required for every 5 students

Career Cluster: Hospitality and Tourism
Pathway: Restaurant and Food & Beverage Services
Program of Study: Food Production, Management and Services

STANDARDS FOR <u>NEW PURCHASES</u> (Effective 1994—Reviewed 2015)

NOTE: *This list does not include basic equipment, presumed to be in an existing FACS department. Purchases on this list are based on 1 commercial kitchen. Additional items from the FACS department will be used to support this program of study. For a list of these required items, refer to the Family and Consumer Sciences Education Equipment list.*

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Student Computer System	5	7	9	See ACE Technology Standards
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
36" Commercial Range	1	1	1	Gas or Electric, 2 open burners, 24" griddle with standard oven base, stainless front, sides and backsplash
Convection Oven	1	1	1	Gas or Electric, Single Stack, Solid State Controls, 60/40 independent doors
Dishwasher	1	1	1	Free standing or under counter, built-in electric booster, 30 racks per hour
Ice Maker	1	1	1	Free standing or under counter, built-in bin, 95-145 lb. Production per 24 hours
Refrigerator	1	1	1	Reach-in, two section, self-contained, stainless steel front, standard depth, full-height door. Exterior dial type thermometer, 1/2 h.p. compressor, casters
Freezer	1	1	1	Reach-in, one-section, self-contained, stainless steel-front, standard depth, full-height door. Exterior dial type thermometer, 1/2 h.p. compressor, casters
Ventilation Exhaust and Fire Suppression	1	1	1	Stainless steel vent-a-hood, 48"x192"x 30" with fire suppression system per local code
Sink	1	1	1	Three compartment, stainless steel with right drain board, 20" front to back x 16" wide compartment, 14" deep with 10" high splash, 24" drain board.
Disposal	1	1	1	Food Waste Disposal, 1 h.p.
Dish tables	1	1	1	Fitted for under counter dishwasher, Stainless steel, 20"x20"x8" sink bowl, 9" H backsplash
Pre-Rinse Assembly	1	1	1	Deck or Back-splash Mount
Mixer with Stand	1	1	1	12-20 qt. Table-top Commercial Mixer, double hook, wire whip and flat beaters. Stainless steel stand, 30"x 36"
Cooks Tables	2	2	2	3'x5' minimum, stainless steel
Hot Food Table	1	1	1	Electric, 120 V. Portable, 58"x22"x34", 4 openings
Cold Food Bar	1	1	1	4', polyethylene construction, insulated with drain plug. Table-top model with Sneeze Guard
Food Processor	1	1	1	Commercial, 1.75 h.p., with attachments/blades
Commercial Food Slicer	1	1	1	1.7 h.p., industry standard on safety, sturdy
Food Storage				
Small Equipment				
Top of Range Cookware				
Kitchen Tools				
Bakeware				
Shelving and Food Transport				
Serving & Presentation				
Safety/Sanitation				

Course: Family and Consumer Science Investigation (Family CSI)

STANDARDS FOR <u>NEW PURCHASES</u> (Effective 2002—Updated 2015)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Student Computer System	5	7	9	See ACE Technology Standards
Computer Printer, color, copy/scan/FAX features	1	1	1	See ACE Technology Standards
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.
Demonstration Table	1	1	1	For clothing or foods demonstrations. Electrical outlet, overhead mirror, and casters, on board cook top and water supply.
Additional Storage/Demonstration Unit	1	1	1	Multiple storage areas and types, locking, sturdy, easy access during demonstrations. May be additional basic demo table or built in counter storage.
Serger	1	1	2	Differential feed, free arm, 3-5 thread
Sewing Machines	5	7	10	Portable with protective case, sufficient space for setup. (Set-up Options: 1 cabinet per machine, or 1 table per 2 machines, or custom counter space of 40" per machine)
Stools for Sewing Machine	5	7	10	
Pressing Equipment Sets				
Cutting Equipment Sets				
Cutting Tables	1	1	2	Sturdy wood or metal (folding with gravity lock slides) 36"X 72"
Special Storage Cabinet	1	1	2	Tote tray storage, hanging space, minimum 30 slots.
Refrigerator		1		Dorm Style, adjustable shelves.
Microwave Oven		1		1000-1500 Watts, automatic sensors, turntable, multiple power levels, minimum 1.5 cubic ft interior
Toaster Oven		1		Table top, large enough to bake cookies, muffins, pizza, and other small food items.
Kitchen Tools				
Oven Baking Equipment				*Note* all baking items should fit dimensions and specifications of toaster oven purchased.
Range Top Cooking Equipment				
Small Electrical Equipment				
Kitchen Linen Sets				
Table Appointments				

Career Cluster: Hospitality and Tourism
Pathway: Lodging
Program of Study: Lodging Management

STANDARDS FOR <u>NEW PURCHASES</u> (Effective 2002)

NOTE: This list does not include basic equipment, presumed to be in an existing FACS department. Additional items from the FACS department will be used to support this program of study. For a list of these required items, refer to the Family and Consumer Sciences Education Equipment List.

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Specifications/ Descriptions
Digital Camera or Video Camera	1	1	1	Multi-function, digital or VCR tape. Case and strap.
Demonstration Projector	1	1	1	Multiple settings, stable base, large platform.
Student Computer System	5	7	9	See ACE Technology Standards
Student Printer, color, copy/scan/FAX features	1	1	1	See ACE Technology Standards
Calculator	1	2	3	10 key, multi-function, 2 color tape print out, digital display. Dedicated to Mock Registration Desk.
Office Desk with Chair	1	1	1	Dedicated to Mock Registration, sturdy, professional, desk must lock with storage and room for computer and printer. Chair must be adjustable and on wheels.
Sofa Bed	1	1	1	Full Sleeper, 76"w x 38"d x 35" h or larger, Semi Attached Back, loose cushions, durable fabric.
Commercial Vacuum	1	1	1	Triple filtration system, Automatic carpet height adjustment, built in maid's cart, easy transport, on board storage for attachments and supplies, long 2 wire cable (31 feet).
Commercial Floor Polisher	1	1	1	Brush pad diameter 20", 1.5 hp motor, adjustable handle and aluminum construction, sealed gear chamber, non-marking wall bumper, 50 foot cable.
Commercial Cleaning Set	1 set			
Bath Linens Set				1 set per student. A set consists of 2 bath towels, 2 hand towels, and 4 wash cloths.
Bed Linens Set				
Storage Cabinet	1	1	1	Locking, sturdy, adjustable shelves, storage for linens and additional items.

Operational Guide for
School Improvement

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: ARCHITECTURE & CONSTRUCTION	
Pathway	**Program of Study**
Design & Pre-Construction	Architectural/CAD
Design & Pre-Construction	Engineering/CAD

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: HEALTH SCIENCE	
Biotechnology Research & Development	Biomedical Sciences

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: STEM (Science, Technology, Engineering & Mathematics)	
Engineering & Technology	Pre-Engineering

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: INFORMATION TECHNOLOGY	
Pathway	**Program of Study**
Network Systems	Computer Engineering
Programming and Software Development	Mobile Apps
Programming and Software Development	Programming

CAREER CLUSTER: ARCHITECTURE & CONSTRUCTION; HEALTH SCIENCE; SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM); AND INFORMATION TECHNOLOGY

Architecture & Construction Cluster

Program Description

Designing, planning, managing, building, and maintaining physical structures and the larger built environment, including roadways and bridges and industrial, commercial, and residential facilities and buildings

Health Science Cluster

Program Description

Planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development

STEM Cluster

Program Description

The STEM cluster makes up a group of instructional programs that prepare individuals to apply technical knowledge and skills in one or more trade, technical, and/or professional occupations. Students will engage in activities and instruction enabling them to use, create, problem solve, and control various technology resources: people, tools, machines, information, materials, energy, capital, and time.

Occupational Programs

Specific courses are required for each of the programs of study (pathways); in addition, various options may be selected to complete the required curriculum.

Student Organization

The appropriate career and technical student organization, Technology Student Association (TSA) and/or SkillsUSA shall be an integral part of each instructional program respectively and shall follow the same guidelines, goals, objectives, and participate in activities of the Arkansas state chapter as well as the respective national organization.

School Improvement Initiatives

The Office of School Improvement facilitates several initiatives designed to promote student success, as well as school success. High Schools That Work (HSTW), Technology Centers That Work (TCTW) are both programs developed through the Southern Regional Education Board (SREB).

The Arkansas Department of Career Education is also an active member of the National Career Academy Coalition. The Office of School Improvement assists schools who wish to adopt the Career Academy school model.

About National Career Academy Coalition

Mission and Vision

From its inception in 1996, NCAC's mission has been to provide collaborative support and resources for existing and emerging career academies.

It is our belief that the success of academy students is due to the network of support that they receive from teachers, mentors, and business people that help them set long term goals and stay on a clear path. By joining NCAC you will be connected to experts and practitioners that share your passion for changing the lives of young people.

Advise

As the keeper of the National Standards of Practice, NCAC's mission is to ADVISE organizations across the country in order to create and support a national network of existing and emerging career academies. NCAC offers direct access to academy experts and free advice on all things Career Academy.

Assist

Our members access world class professional development, action and strategic planning guides, career academy research and data, and much more.

Advocate

The NCAC convenes major players in the Career Academy world. We advocate for Career Academies from the district level to the White House and place papers and articles in the National Media.

About High Schools That Work

High Schools That Work (HSTW) is the largest and oldest of the Southern Regional Education Board's (SREB) school-improvement initiatives. Beginning in 1987, it was the nation's first large-scale effort to engage state, district and school leaders and teachers in partnerships with students, parents and the community to improve the way high school students are prepared for work and further education.

Today's students live in an era driven by math, science, technology, and information. Consequently, we must prepare them with the essential skills they need to prosper in the data based economy. *HSTW* provides that framework through 10 Key Educational Practices for accelerating learning and setting higher standards. It recommends actions that provide direction to schools as they work to improve academic and career/technical instruction at school and at work sites. These recommendations meet the criteria for comprehensive school reform.

Arkansas is a member of the Southern Regional Education Board's (SREB) network of 31 states and more than 1,200 high schools in the *HSTW* program. There are 26 Arkansas high schools that participate in this initiative through the Arkansas Department of Workforce Education (ADWE).

The *HSTW* effort is based on the belief that, in the right school environment, most students can learn complex academic and technical concepts. The initiative targets high school students who seldom are challenged to meet higher academic standards.   *HSTW* offer school systems a unique opportunity to prepare more students to communicate, solve problems, perform tasks and produce products – on the job and in a lifetime of learning.

To learn more, continue to tour through the Arkansas *High Schools That Work* web site or www.sreb.org
Other SREB school-improvement initiatives:
- Making Middle Grades Work   (MMGW)
- Making Schools Work
- Comprehensive School Reform Project
- Project Lead the Way   (PLTW) currently offered in Arkansas
- Urban Initiatives
- Leadership Preparation Initiative
- Advanced Careers
- Counselor Training
- College and Career Readiness

About Technology Centers That Work (TCTW)

Tech centers, technology centers, technical centers, career centers and career-technical (CT) centers all have a common purpose: to provide high-quality CT studies to high school students. Students may attend these centers for only a portion of the school day, week or year, or they may attend full time, receiving both academic and technical instruction at the center.

The Technology Centers That Work (TCTW) school improvement initiative was formed in 2007 to help these shared-time centers review and implement the actions needed to produce high-demand, high-wage graduates who will be leaders in their selected careers. The network now includes more than 180 sites in 18 states.

SREB provides member sites with staff development, technical assistance, publications and assessment services. TCTW sites participate in the biennial High Schools That Work (HSTW) Assessment and the TCTW Teacher Survey, designed specifically for teachers in shared-time centers. The Bureau of Career and Technical Education's (BCTE) reform initiative consists of twelve programs (a separate in brief) that will be offered to all CTCs that participate in this effort. Of the twelve, one program has been identified as the key component of this process -- Technical Centers that Work (TCTW).

High Expectations: Motivate more students to meet high expectations by integrating high expectations into classroom practices and giving students frequent feedback.

Program of Study: Require each student to complete a plan of study leading them to complete a true concentration in an approved sequence of at least four career-technical (CT) courses and an upgraded academic core leading to preparation for postsecondary studies and a career.

Academic Studies: Teach more students the essential concepts of the college-preparatory curriculum by encouraging them to apply academic content and skills to real-world problems and projects within their CT studies.

CT Studies: Provide more students access to intellectually challenging CT studies in high-demand fields that emphasize higher-level mathematics, science, literacy and problem-solving skills needed in the workplace and in further education.

Work-Based Learning: Enable students and their parents to choose from programs that integrate challenging high school CT studies and work-based learning and are planned by educators, employers and students.

Teacher Collaboration: Provide cross-disciplinary teams of teachers the time and support to work together to help students succeed in challenging CT and academic studies. Integrate reading, writing and speaking as strategies for learning into all parts of the curriculum, and integrate mathematics and science into CT classrooms.

Students Engagement: Engage students in CT and academic classrooms in rigorous and challenging assignments using research-based strategies and technology.

Guidance: Involve students and their parents in a guidance and advisement system that develops positive relationships and ensures completion of a CT concentration with an approved sequence of at least four courses and an accelerated program of study. Provide each student with an adult mentor who works with them throughout high school to assist with setting goals, selecting courses, reviewing progress and pursuing appropriate interventions as necessary.

Extra Help: Provide a structured system of extra help to assist students in completing accelerated programs of study with high-level academic and technical content.

Culture of Continuous Improvement: Use student assessment, program evaluation data, technology center performance reports, program enrollment, retention and placement reports, college remediation reports, student follow-up reports and advisory committee input to continuously improve school culture, organization, management, curriculum and instruction to advance student learning.

While these practices may not be new, using them in conjunction with other reform efforts to create a comprehensive initiative, should lead to a higher rate of student success.

Pathways and Programs of Study by Career Cluster

Architecture & Construction Cluster

Design & Pre-Construction Pathway
Architectural/CAD Program of Study

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
494700	Drafting and Design —Core	1			X	X	X	X
494710	Architectural / CAD I —Core	1			X	X	X	X
Plus select one of the courses below								
494720	Architectural / CAD Lab	1			X	X	X	X
494730	Architectural / CAD II	1				X	X	X

Design & Pre-Construction Pathway
Engineering/CAD Program of Study

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
494700	Drafting and Design —Core	1			X	X	X	X
494740	Engineering / CAD I —Core	1			X	X	X	X
Plus select one of the courses below								
494750	Engineering / CAD Lab	1			X	X	X	X
494760	Engineering / CAD II	1				X	X	X

Health Sciences Cluster

Biotechnology Research & Development Pathway
Biomedical Sciences Program of Study
Biomedical Sciences: PTLW

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495000	Principles of Biomedical Sciences (PBS)	1			X	X	X	X
495010	Human Body Systems (HBS)	1			X	X	X	X
Plus select one of the courses below								
495020	Medical Interventions (MI)	1			X	X	X	X
495030	Biomedical Innovations (BI)	1			X	X	X	X

STEM (Science, Technology, Engineering, and Mathematics) Cluster

Planning, managing, and providing scientific research and professional and technical services (e.g., physical science, social science, engineering), including laboratory and testing services and research and development services

Engineering & Technology Pathway
Pre-Engineering Program of Study
(Must have the 2 "Core Requirements" and 1 "Elective Specialization" course selected from list below)
Pre-Engineering: PLTW

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495480	Introduction to Engineering Design (IED)	1			X	X	X	X
495490	Principles of Engineering (POE)	1			X	X	X	X
Plus one of the courses below								
494980	Aerospace Engineering (AE)	1					X	X
494990	Biotechnical Engineering (BE)	1					X	X
495440	Civil Engineering and Architecture (CEA)	1					X	X
495450	Computer-Integrated Manufacturing (CIM)	1					X	X
495460	Digital Electronics (DE)	1				X	X	X
495470	Engineering Design and Development (EDD) -CAPSTONE	1					X	X

Drafting and Design Engineering CAD – Optional

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494700	Drafting and Design	1			X	X	X	X
494740	Engineering CAD I	1			X	X	X	X
494750	Engineering CAD Lab	1			X	X	X	X

*Engineering CAD I and CAD Lab must both be completed in order to use for completion in Pre-Engineering (4 courses for completion)

Information Technology (IT) Cluster

Building linkages in IT occupations framework: for entry level, careers related to the design, development, support, and management of hardware, software, multimedia and systems integration services

Network Systems Pathway
Computer Engineering Technology Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
Pending	Computer Engineering Technology (CET) I	1			X	X	X	X
Pending	Computer Engineering Technology (CET) II	1			X	X	X	X
Pending	Capstone Course (In Development)	1			X	X	X	X

Programming & Software Development Pathway
Programming Program of Study

This is a hybrid program of study requiring the Core courses listed below as well as 2 Carnegie units of approved Business Education elective courses.

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
492390	Programming I	.5			X	X	X	X
492400	Programming II	.5			X	X	X	X

Mobile Application Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
Pending	Introduction to Mobile App Development	1			X	X	X	X
Pending	Mobile App Development I	.5			X	X	X	X
Pending	Mobile App Development II	.5			X	X	X	X
Pending	Mobile App Development Lab A	.5			X	X	X	X
Pending	Mobile App Development Lab B	.5			X	X	X	X

Middle School
Gateway to Technology: PLTW

Course Code	Middle School Courses	Units of Credit	7th	8th	9th	10th	11th	12th
399110	Automation and Robotics (AR) – Core	0	X	X				
399120	Design and Modeling (DM) – Core	0	X	X				
399310	Energy and the Environment (EE)	0	X	X				
399250	Flight and Space (FS)	0	X	X				
399300	Green Architecture (GA)	0	X	X				
399130	The Magic of Electrons (ME)	0	X	X				
399140	The Science of Technology (ST)	0	X	X				
399180	Medical Detectives (MD)	0	X	X				

Engineering Technology Education

Course Code	Non-Program Specific Electives	Units of Credit	7th	8th	9th	10th	11th	12th
399150	Engineering Technology Education I (ETE 1)	0	X	X				
399160	Engineering Technology Education II (ETE 2)	0	X	X				

All SCHOOL IMPROVEMENT COURSES

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
494980	Aerospace Engineering (AE)	1					X	X
494710	Architectural/CAD I	1			X	X	X	X
494730	Architectural/CAD II	1				X	X	X
494720	Architectural/CAD Lab	1			X	X	X	X
399120	Automation and Robotics (AR)	0	X	X				
495030	Biomedical Innovations (BI)	1					X	X

Course Code	Courses	Units of Credit	7th	8th	9th	10th	11th	12th
494990	Biotechnical Engineering (BE)	1					X	X
495440	Civil Engineering & Architecture (CEA)	1					X	X
495450	Computer-Integrated Manufacturing (CIM)	1					X	X
Pending	Computer Engineering Technology I	1			X	X	X	X
Pending	Computer Engineering Technology II	1			X	X	X	X
Pending	Computer Engineering Capstone	1			X	X	X	X
399120	Design and Modeling (DM)	0	X	X				
494400	Diagnostics	1			X	X	X	X
495460	Digital Electronics	1				X	X	X
494700	Drafting & Design	1			X	X	X	X
399310	Energy and the Environment (EE)	0	X	X				
494740	Engineering/CAD I	1			X	X	X	X
494760	Engineering/CAD II	1				X	X	X
494750	Engineering/CAD Lab	1			X	X	X	X
495470	Engineering Design and Development-CAPSTONE (EDD)	1					X	X
399150	ETE 1 (Intro to Engineering and Technology Education , 7-8th grade)	0	X	X				
494010	ETE 1 (Intro to Engineering and Technology Education, 9th grade)	.5			X			
399160	ETE 2 (Fundamentals of Engineering and Technology Education, 7-8th grade)	0	X	X				
494020	ETE 2 (Fundamentals of Engineering and Technology Education, 9th grade)	.5			X			
399250	Flight and Space (FS)	0	X	X				
399300	Green Architecture	0	X	x				
495010	Human Body Systems (HBS)	1			X	X	X	X
495040	Introduction to Computer Science (ICS)	.5			X	X	X	X
495480	Introduction to Engineering Design (IED)	1			X	X	X	X
492580	Introduction to Java – Oracle Internet Academy	.5				X	X	X
492590	Java Programming – Oracle Internet Academy	.5				X	X	X
399130	Magic of Electrons, The (ME)	0	X	X				
399180	Medical Detectives (MD)	0	X	X				
495020	Medical Interventions (MI)	1			X	X	X	X
494410	Networking	1			X	X	X	X
494420	Operations	1			X	X	X	X
522070	Physics in Context (PIC)	1			X	X	X	X
495000	Principles of Biomedical Sciences (PBS)	1			X	X	X	X
495490	Principles of Engineering (POE)	1			X	X	X	X
523000	Principles of Technology I (PT)	1			X	X	X	X
522000	Principles of Technology II (PT)	1				X	X	X
492390	Programming I	.5			X	X	X	X
492400	Programming II	.5			X	X	X	X
399140	Science of Technology, The	0	X	X				

Course Code	ACE Prior Approval Courses	Units of Credit	7th	8th	9th	10th	11th	12th
District must seek ACE prior approval before implementation								
492490	ACE Approved Computer Applications I	.5			X	X	X	X
492500	ACE Approved Computer Applications II	.5			X	X	X	X
492510	ACE Approved Computer Applications III	.5			X	X	X	X
492680	Introduction to Object Oriented Programming ACE Approved	.5				X	X	X
492520	Programming III ACE Approved	.5				X	X	X
590020	CISCO Networking Academy	1			X	X	X	X

CAREER CLUSTER: ARCHITECTURE & CONSTRUCTION; HEALTH SCIENCE; SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM); AND INFORMATION TECHNOLOGY

494980   Aerospace Engineering (AE)
Credit: 1   Grade Levels: 11-12
Through hands-on engineering projects developed with NASA, Aerospace Engineering students learn about aerodynamics, astronautics, space-life sciences, and systems engineering, including the study of intelligent vehicles like the Mars rovers Spirit and Opportunity.

494710   Architectural/CAD I (Core Course)
Credit: 1   Grade Levels: 9-12
Architectural/CAD I focuses on the knowledge and skills required to plan and prepare scale pictorial interpretations of plans and design concepts for residential buildings. Emphasis is given to the development of competencies related to solving drafting and design problems that require the individual to understand and apply a wide range of technical knowledge and critical thinking skills. The course is designed to allow the student to produce architectural drawings as traditional drawings or as computer-aided drawings.

494730   Architectural/CAD II
Credit: 1   Grade Levels: 10-12
Architectural/CAD II focuses on the knowledge and skills required to plan and prepare scale pictorial interpretations of plans and design concepts for residential buildings. Emphasis is given to the development of real world experiences in applying the application of architectural drafting standards. The course is designed to allow the student to produce drawings as traditional drawings or advanced use of various CAD software to produce drawings.

494720   Architectural/CAD Lab
Credit: 1   Grade Levels: 9-12
This production-based program is designed to allow for the development of skills and knowledge needed to execute a comprehensive architectural product.

399110   Automation and Robotics (AR)
1 Semester Course – Grade Levels: 7-8
Students trace the history and development of automation and robotics. They learn about structures, energy transfer, and machine automation. They also find out what they need to study in high school and beyond to prepare for careers in engineering.

495030   Biomedical Innovations (BI) – Capstone Course
Credit: 1   Grade Levels: 11-12
Students apply their knowledge and skills to answer questions and solve problems related to the biomedical sciences. In this capstone course, they may consult with a mentor or advisor from a university, hospital, physician's office, or industry. Students are expected to present the results of their work to an adult audience, which may include representatives from the local healthcare or business community or the school's Partnership Team.

494990   Biotechnical Engineering (BE)
Credit: 1   Grade Levels: 11-12
The Biotechnical Engineering course provides relevant projects from the diverse fields of biotechnology, bioengineering, biomedical engineering, and bimolecular engineering that enable students to apply and concurrently develop secondary-level knowledge and skills in biology, physics, technology, and mathematics.

495440   Civil Engineering and Architecture (CEA)
Credit: 1   Grade Levels: 11-12
This course builds upon the computer solid modeling design skills developed in Introduction to Engineering Design. Students will be presented with design problems that require the use of computer-aided drafting skills to develop solutions to the problems. .

(Course code pending)   Computer Engineering Technology I (CET I)
Credit: 1   Grade Levels: 9-12
This course includes the skills required for building, troubleshooting, repairing and maintaining computers. It includes objectives in the following domains: a) PC Hardware, b) Networking, c) Laptops, d) Printers, and e) Operational procedures.

(Course code pending)   Computer Engineering Technology II (CET II)
Credit: 1   Grade Levels: 9-12
This course includes the skills required for building, troubleshooting, repairing and maintaining computers. It includes objectives in the following domains: a) Operating systems, b) Security, c) Troubleshooting and preventative maintenance, and d) Green IT

(Course code pending)   Computer Engineering Capstone
Credit: 1   Grade Levels: 9-12
The Capstone course provides students with the opportunity for hands-on experience by putting their education and skills into practice. Course design is intended to enhance student's professional problem-solving strategies.

495450   Computer-Integrated Manufacturing (CIM)
Credit: 1   Grade Levels: 11-12
This course builds upon the computer solid modeling design skills developed in Introduction to Engineering Design. Students will be presented with design problems that require the use of Inventor to develop solutions to the problems.

399120   Design and Modeling (DM)
1 Semester Course – Grade Levels: 7-8
Students will learn the uses of solid modeling. They will be introduced to the design process and shown how this technology has influenced their lives. Using design briefs or abstracts, students create models and documentation to solve problems.

495460   Digital Electronics (DE)
Credit: 1   Grade Levels: 10-12
Digital Electronics is a course of study in applied digital logic. The course is patterned after the first-semester course in digital electronics taught in two- and four-year colleges. Students will study the application of electronic logic circuits and devices and apply Boolean logic to the solution of problems.

494700   Drafting & Design (Core Course)
Credit: 1   Grade Levels: 9-12
Drafting and Design focuses on the basic knowledge and skills required to produce engineering and architectural drawings. Emphasis is given to the development of competencies related to the use of drafting equipment, the production of beginning level engineering drawings and the production of beginning level architectural drawings.

399310   Energy and the Environment (EE)
1 Semester Course – Grade Levels: 7-8
Students investigate the impact of energy on their lives and the environment. Alternative energy sources are evaluated and used to reduce energy consumption through energy efficiency and sustainability.

494740   Engineering/CAD I
Credit: 1   Grade Levels: 9-12
Engineering/CAD I focus on the knowledge and skills required to produce advanced level engineering drawings. Emphasis is given to the development of competencies related to solving drafting and design problems that require the individual to understand and apply a wide range of technical knowledge and critical-thinking skills. The course is designed to allow the student to produce drawings of mechanical parts, engineering diagrams, electronics, etc. as traditional drawings or as computer-aided drawings.

494760   Engineering/CAD II
Credit: 1   Grade Levels: 10-12
Engineering/CAD II focuses on the knowledge and skills required to produce advanced level engineering drawings. Emphasis is given to putting into practice real world experience related to solving problems that require the individual to understand and use various engineering software and techniques.

494750   Engineering/CAD Lab
Credit: 1   Grade Levels: 9-12
This production-based program is designed to allow for the development of skills and knowledge needed to execute a comprehensive engineering product.

495470   Engineering Design and Development – (CAPSTONE)
Credit: 1   Grade Levels: 11-12
In this course, students will work in teams of two to four to design and construct the solution to an engineering problem, applying the principles developed in the preceding four courses.

399150   ETE 1 (Introduction to Engineering and Technology, 7-8th grade)
1 Semester Course – Grade Levels: 7-8
Students will develop an understanding of the history of technology involving information and communication, construction, manufacturing, energy, power, transportation and how they can be used to solve technological problems.

494010　　ETE 1 (Introduction to Engineering and Technology, 9th grade)
Credit: .5　　Grade Level: 9
Students will develop an understanding of the history of technology involving information and communication, construction, manufacturing, energy, power, transportation and how they can be used to solve technological problems.

399160　　ETE 2 (Fundamentals of Engineering and Technology, 7-8th grade)
1 Semester Course – Grade Levels: 7-8
Students will further their understanding of the of impact technology has on the modern world involving information and communication, construction, manufacturing, energy, power, transportation and how they can be used to solve technological problems.

494020　　ETE 2 (Fundamentals of Engineering and Technology, 9th grade)
Credit: .5　　Grade Levels: 9
Students will further their understanding of the of impact technology has on the modern world involving information and communication, construction, manufacturing, energy, power, transportation and how they can be used to solve technological problems.

399250　　Flight and Space (FS)
1 Semester Course – Grade Levels: 7-8
The history of aerospace comes to life through hands-on activities and research as students explore the science behind aeronautics. Students use their knowledge to build, design, and test airfoil. Simulation software is used to provide space travel experience.

399300　　Green Architecture (GA)
1 Semester Course – Grade Levels: 7-8
The concept of "being green" is introduced to the next generation of designers and builders. Students learn about architectural styles and sustainability construction plans. An environmentally friendly home is designed using 3D architecture software.

495010　　Human Body Systems (HBS)
Credit: 1　　Grade Levels: 9-12
Students engage in the study of the processes, structures, and interactions of the human body systems. Important concepts in the course include: communication, transport of substances, locomotion, metabolic processes, defense, and protection. The central theme is how the body systems work together to maintain homeostasis and good health.

495040　　Introduction to Computer Science (ICS)
Credit: . 5　　Grade Levels: 9-12
Designed to be the first computer science course for students who have never programmed before, ICS is an optional starting point for the PLTW Computer Science program.

495480　　Introduction to Engineering Design (IED)
Credit: 1　　Grade Levels: 9-12
Introduction to Engineering Design is an introduction course that develops students' problem-solving skills, with emphasis placed on the concept of developing a 3-D model or solid rendering of an object. Students focus on the application of visualization processes and tools provided by modern, state-of-the-art computer hardware and software.

(Course code pending)　　Introduction to Mobile Application Development
Credit: 1.0　　Grade Levels: 9-12
This is a broad course that provides an overview of the fundamental elements of mobile app development in both Android and iOS platforms.

399130　　Magic of Electrons (ME)
1 Semester Course – Grade Levels: 7-8
Students use hands-on projects to explore the science of electricity including the behavior and parts of atoms using sensing devices. Knowledge and skills are acquired in basic circuitry design and the impact of electricity on our lives.

399180　　Medical Detectives (MD)
1 Semester Course – Grade Levels: 7-8
Students play the role of real-life medical detectives as they analyze genetic testing results to diagnose disease and study DNA evidence found at a "crime scene." They solve medical mysteries through hands-on projects and labs, investigate how to measure and interpret vital signs, and learn how the systems of the human body work together to maintain health.

495020   Medical Interventions (MI)
Credit: 1   Grade Levels: 9-12
Students investigate a variety of interventions involved in the prevention, diagnosis and treatment of disease as they follow the lives of a fictitious family. The course is a "How-To" manual for maintaining overall health and homeostasis in the body as students explore how to prevent and fight infection; how to screen and evaluate the code in human DNA; how to prevent, diagnose and treat cancer; and how to prevail when the organs of the body begin to fail.

(Course code pending)   Mobile Application Development I (MAD I)
Credit: .5   Grade Levels: 9-12
This course goes beyond the introduction course and focusses on either platform the school district feels best suits the students and community. Students learn coding as it pertains to the selected operation system and begin developing working applications for mobile devices.

(Course code pending)   Mobile Application Development II (MAD II)
Credit: .5   Grade Levels: 9-12
This course continues teaching coding as it pertains to the selected operation system and developing working applications for mobile devices.

(Course code pending)   Mobile Application Development Lab A (MAD Lab A)
Credit: .5   Grade Levels: 9-12
This lab course is designed as a capstone course for the MAD program. Students will assimilate a working mobile application that may be utilized in a real-world setting. The instructor will determine valid activities for the students and the structure in which the lab is maintained.

(Course code pending)   Mobile Application Development Lab B (MAD Lab B)
Credit: .5   Grade Levels: 9-12
This lab course is designed as a capstone course for the MAD program. Students will assimilate a working mobile application that may be utilized in a real-world setting. The instructor will determine valid activities for the students and the structure in which the lab is maintained.

522070   Physics in Context
Credit: 1   Grade Levels: 9-12
PIC is designed as a hands-on, activity-based, applied physics course normally requiring one year to complete. Students will receive information and experiences from a balance of sources, such as class lecture, demonstrations and discussions, the text and workbook, audio-video/visual aids, math skills labs, hands-on physics applications labs, and review.

495000   Principles of the Biomedical Sciences (PBS)
Credit: 1   Grade Levels: 9-12
Student work involves the study of human medicine, research processes, an introduction to bioinformatics, and the use of computer science, mathematics, and information theory to model and analyze biological systems. Students investigate the human body systems and various health conditions including heart disease, diabetes, sickle-cell disease, hypercholesterolemia, and infectious diseases.

495490   Principles of Engineering (POE)
Credit: 1   Grade Levels: 9-12
Principles of Engineering is a broad-based survey course designed to help students understand the field of engineering and engineering technology and its career possibilities. Students will develop engineering problem-solving skills that are involved in postsecondary education programs and engineering careers. They will explore various engineering systems and manufacturing processes.

523000   Principles of Technology I (PT I)
Credit: 1   Grade Levels: 9-12
PT I is designed as a hands-on, activity-based, applied physics course (it normally requires two years to complete PT I and PT II). One physics (science) credit toward graduation requirements shall be given students who complete the two-year PT course (PT I and PT II). One elective vocational credit or one physical science credit shall be given students who complete only one year of the PT course.

522000   Principles of Technology II (PT II)
Credit: 1   Grade Levels: 10-12
PT II is designed as a hands-on, activity-based, applied physics course (it normally requires two years to complete PT I and PT II). One physics (science) credit toward graduation requirements shall be given students who complete the two-year PT course (PT I and PT II). One elective vocational credit or one physical science credit shall be given students who complete only one year of the PT course.

492390   Programming I
Credit: .5   Grade Levels: 9-12
Programming I is a one-semester course in any modern, high-level, structured language. Concepts should be taught in the context of practical applications.

492400   Programming II
Credit: .5   Grade Levels: 9-12
Programming II is a one-semester course that is a continuation of the study of the language taught in Programming I.

399140   Science of Technology (ST)
1 Semester Course – Grade Levels: 7-8
How science has affected technology throughout history is traced as students learn to apply the concepts in physics, chemistry and nanotechnology to STEM activities and projects.

ACE Prior Approval School Improvement/STEM Courses

590020   ACE-Approved Cisco Networking Academy
Credit: 1   Grade Levels: 9-12
Students will acquire skills in understanding the function, installation, configuration, and diagnostic procedures for microcomputer local area network hardware, electronic components, peripheral devices, and operating system software. Prior approval must be obtained from the **School Improvement** Office before this course is implemented.

492680   ACE-Approved Introduction to Object Oriented Programming
Credit: .5   Grade Levels: 10-12
Introduction to Object Oriented Programming is a half-unit course that is taught in the language *Alice*, and allows students to write on-screen "movies" and "games" in 3D word. Students will learn programming concepts in a fun and motivating environment.
Districts desiring to implement this course should request approval from the **School Improvement** Office.

492520   ACE-Approved Programming III
Credit: .5   Grade Levels: 10-12
Programming III is a half-unit course that is a continuation of the study of the language taught in Programming II.
Districts desiring to implement this course should request approval from the **School Improvement** Office.

SCHOOL IMPROVEMENT
MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

Cluster: Architecture & Construction
Pathway: Design & Pre-Construction
Program of Study: Drafting & Design Architectural/CAD and Engineering/CAD

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Student Computer System	15	20	25	See ACE Technology Standards
Computer plotter	1	1	1	Contact State Office for Standards
Computer scanner	1	1	2	
Blueprint storage cabinet	1	1	1	24" x 36" capacity
Drafting chair	15	20	25	Adjustable height & back
Instructor's drawing chair	1	1	1	Adjustable height & back
Machinist measuring instrument set	2	2	2	1" micrometer, 6" vernier gauge, combination square, 6" machinist scale
Plot server	1	1	1	Contact State Office for Standards
CAD software, student	15	20	25	Contact State Office for Standards
CAD software, teacher	1	1	1	Current release of AutoCAD, AutoCAD Mechanical, or Architectural Desktop
Network control software	1	1	1	(Allows for instructor control of student workstation)
Architectural Graphic Standards Reference	1	1	1	

Cluster: Health Science
Pathway: Biotechnology Research & Development
Program of Study: Biomedical Sciences

Schools utilizing Project Lead the Way (PLTW) curriculum must follow purchasing guidelines published on PLTW website www.pltw.org

Cluster: STEM
Pathway: Engineering & Technology
Program of Study: Pre-Engineering

Schools utilizing Project Lead the Way (PLTW) curriculum must follow purchasing guidelines published on PLTW website www.pltw.org

Cluster: Information Technology
Pathway: Network Systems
Program of Study: Computer Engineering Technology
Draft as of 01/05/2015

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/Specification
Desktops	15	20	25	See ACE Technology standards
22 inch LCD Monitor	15	20	25	
Antivirus/Anti-malware software	15	20	25	
Anti-static wrist strap	5	5	5	
Cable tester	2	2	2	Network circuit tester, data & voice communications test capability
Computer vacuum	1	1	1	Non-USB
Desktop Computer Kit: Reusable kit of parts to make up a working computer	6	8	12	
Dial up modem	1	1	1	USB connectable
ESD Cabinet	1	1	1	lockable grounded/ESD cabinet for computer components
External Hard Drive	1	1	1	Minimum of 1 TB
Flash drive	2	2	2	8 GB flash drive
Flashlight	3	3	3	small flashlight for seeing inside computer
Laptop Kit or old laptops students can use for repair	6	8	12	
Computer file server	1	1	1	Contact ACE for specs.
Multimeter	2	4	6	Digital
Network management system	1	1	1	For networking and managing classroom computer systems
Surge suppressor	5	7	10	
Tool kit, Cat5 Cabling	1	2	2	stripper, crimper, and tester
Tool kit, technician's	10	15	15	Comprehensive computer tool kit
Tool kit, wiring	1	2	2	For coax cable, cable tester, center conductor trimmer, crimp frame, die sets, punch tools, stripper
Uninterruptible power source (UPS)	2	2	2	Including software, Win 2000 and higher compliant with automatic voltage regulation, surge & noise suppression
Webcam	1	1	1	External with microphone
ESD Static control Lab tables	5	5	5	with 2 duplex electrical outlets

Cluster: Information Technology
Pathway: Programming and Software Development
Program of Study: Mobile Application Development

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Student Computer System	15	20	25	2.7GHz Quad-Core Intel Core i5 2560 x 1440 resolution 4GB (two 2GB) memory 1TB hard drive1 AMD Radeon HD 6770M with 512MB iMac
iPod Touch/Android Phone (most recent)	15	20	25	most recent - compatible with most recent software- 32GB
iPad/Android Tablet (most recent)	15	20	25	most recent - compatible with most recent software- 32GB
Teacher Laptop (MacBook Pro - compatible with iOS 5 and Xcode 4.3 or most recent)	1	1	1	2.4GHz quad-core Intel Core i7 4GB 1333MHz 750GB 5400-rpm1 Intel HD Graphics 3000 AMD Radeon HD 6770M with 1GB GDDR5 Built-in battery (7 hours)2
Teacher iPad	1	1	1	
Teacher Android Tablet	1	1	1	
Teacher mobile device/phone (opposite of platform used in MAD I/II)	1	1	1	iPod touch for classroom demonstration if school will be using Android for MAD I/II, Android phone if school will be using iOS for MAD I/II
Digital Cameras	2	3	4	2 to 4 cameras; SLR, 12.2 megapixel effective recording; HD movie mode, 720p @ 30 fps; optical view finder; autofocus and auto metering systems
Media cart	2	2	2	for mobile devices, lockable and able to charge devices
iPad/Android Tablet case	15	20	25	protective, to prevent scratches and allow standing
iPod Touch/Android Phone case	15	20	25	protective, to prevent wear and scratches
Apple Developer License	1	1	1	teacher license
Android Developer License	1	1	1	teacher license
VGA Adapter Cables	1	1	2	cables to project teacher mobile devices and teacher laptop
Headphones	15	20	25	class set of cleanable headphones

Cluster: Science, Technology, Engineering, and Mathematics
Program Support Course: Engineering and Technology Education (ETE)

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/Specification
Class Set of Computers (One per student)	15	20	25	See ACE Technology Standards
Structural Analyzer	1	1	1	Digital Readout for bridges and towers
Dragster Test Track	1	1	1	Digital Time Readout
Wind Tunnel	1	1	1	Measures drag, lift, velocity-aerodynamics

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/Specification
Global Positioning System (GPS)	8	10	14	Handheld, waterproof with base map
Student VEX Robotics Kits	8	10	14	Robotics basic student kit package.
SOFTWARE				
Microsoft Office Suite	15	20	25	Word, Excel, PowerPoint (or equivalent)
Classroom Management Software	15	20	25	Enables teachers to view and control computers in their labs and interact with students.
HAND AND POWER TOOLS				
Drill Press	2	2	2	Rotating, 45 degree tilting, worktable with quick release clamp, Cast-iron pulleys, Heavy-duty positive depth stop Motor (110V) 1/2 HP, 110/220 V, 8/4 A. Can be floor or table top
Cordless drill Set	2	2	2	drill, circular saw, reciprocating saw, impact drill
14" Band Saw	2	2	2	120/240VAC, 1PH, TEFC motor with mechanical on/off switch. 94" maximum blade length; 3/4" maximum width - 6-1/4" capacity under guide; 13-3/4" throat depth. Lower blade guides have safe, accurate, micrometer adjustment and are angled to support the blade to within 3/4" of the table. Wood cutting blade, 4" dust port, guards, arbor, motor pulleys and V-belt
Scroll Saw	2	2	2	Variable speeds, 4/5" stroke, 0 to 45° beveling table, dust port and dust blower included, 1.2-amp motor with no load speed of 500 - 1700 SPM
Portable Dust Collection System	1	1	1	Bag dust collector, with rollers, fully portable, fan cooled motor, Power: 2 HP, 110V.
Air Compressor/Hoses	1	1	1	Minimum 3hp-25gallon
Essential Hand Tool Kit	1	1	1	This includes metal and wood working tools.

All specifications listed are minimums. A greater (higher) value is encouraged and approved.

RECOMMENDED EQUIPMENT				(NOT REQUIRED)
CNC Laser Engraver/Cutter	1	1	1	30 Watt with 360 degree rotary travel, exhaust system, and software.
FasTrak Elevated CO2 Dragster Racetrack	1	1	1	Self-aligning, tab-and-slot system, Custom-extruded aluminum rails, High-impact plastic track surface, Built-in conduit, Shorter (eight- foot) track panels with fold-down leg supports, Precision-made track supports, Solid-core, nonporous surface cleans easily with soap and water.
Air-Powered Dragster Launcher	1	1	1	Dragster launcher uses compressed air to simultaneously launch two model dragsters down a 35- to 40-foot track for students in grades 3-12 studying aerodynamics, motion, drag, and friction Air-powered launcher is made of high-density polyethylene (HDPE) for strength and durability. Built-in pressure relief system keeps air pressure below 40 pounds per square inch (psi) for safety. Includes a string anchor with a tension spring to maintain even string tension. Launcher measures 3 x 11 x 16 inches (H x W x D)
Air Powered Rocket Launcher	1	1	1	Air-powered rocket launcher can launch tube rockets and gliders for students in grades 6-12 studying scientific concepts including trajectory, velocity, aerodynamics, pneumatics, force, and motion. Supported by a tripod for stability, launcher uses air pressure captured in a plastic bottle to propel tube rockets across a gym or school yard for science experiments. Launch angle can be adjusted from 0 to 90 degrees, and air pressure variable ranges from 0 to 20 pounds per square inch (psi) for a variety of tests and results. Capable of launching rockets 100 feet straight up in the air, and farther when launched at an angle. Reinforces science, technology, engineering, and math concepts as students build and launch rockets with varied force and trajectory angles, and then record results.
3D Printer	1	1	1	
Vinyl Cutter	1	1	1	

All specifications listed are minimums. A greater (higher) value is encouraged and approved.

Operational Guide for
Skilled and Technical Sciences Education

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: ARCHITECTURE &CONSTRUCTION	
Pathway	**Program of Study**
Construction	Construction Technology

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: ARTS, AUDIO/VIDEO TECHNOLOGY & COMMUNICATIONS	
Pathway	**Program of Study**
Media Communications	A/V Tech & Film
Media Communications	Radio Broadcasting
Media Communications	Television Production
Media Communications	Graphic Communications
Visual Arts	Advertising & Graphic Design
Visual Arts	Photography

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: GOVERNMENT & PUBLIC ADMINISTRATION	
Pathway	**Program of Study**
National Security	JROTC

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: HEALTH SCIENCE	
Pathway	**Program of Study**
Health Services	Medical Professions
Health Services	Sports Medicine

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY	
Pathway	**Program of Study**
Law Enforcement Services	Criminal Justice

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: MANUFACTURING	
Pathway	**Program of Study**
Manufacturing Production	Advanced Manufacturing
Manufacturing Production	Mechatronics
Manufacturing Production	Precision Machining Technology
Maintenance, Installation & Repair	Industrial Equipment Maintenance
Maintenance, Installation & Repair	Welding

CAREER CLUSTER PATHWAY – PROGRAM OF STUDY CROSSWALK	
Cluster: TRANSPORTATION, DISTRIBUTION & LOGISTICS	
Pathway	**Program of Study**
Mobile Equipment Maintenance & Repair	Automotive Collision Repair Technology
Mobile Equipment Maintenance & Repair	Automotive Service Technology
Mobile Equipment Maintenance & Repair	Aviation Technology
Mobile Equipment Maintenance & Repair	Diesel Mechanics

Program Description

Skilled and Technical Sciences are a group of instructional programs that prepare individuals to apply technical knowledge and skills in one or more trade, technical, and/or professional occupations. Students will engage in activities and instruction enabling them to use, create, problem solve, and control various technology resources; people, tools, machines, information, materials, energy, capital, and time.

Occupational Programs

There are eight career clusters from which students may choose. Specific courses are required for each of the programs of study (pathways); in addition, various options may be selected to complete the required curriculum.

Career and Technical Student Organization (CTSO)

SkillsUSA or HOSA shall be an integral part of each instructional program respectively and shall follow its specific guidelines, goals, and objectives. Students may participate in activities of the Arkansas and its respective national CTSO. Districts shall offer students access to leadership training through an appropriate student organization.

Pathways and Programs of Study by Career Cluster

Arts A/V Communications & Technology Cluster

Designing, producing, exhibiting, performing, writing, and publishing multimedia content, including visual and performing arts and design, journalism, and entertainment services

Media Communications Pathway (Programs of Study to be combined in 2016)
Advertising and Graphic Design Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494150	Fundamentals of Advertising and Graphic Design	1			X	X	X	X
494170	Intermediate Advertising and Graphic Design	1				X	X	X

Audio-Video Tech and Film Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493640	Fundamentals of Audio/Video Tech & Film	1			X	X	X	X
493650	Intermediate Audio/Video Tech & Film	1				X	X	X

Radio Broadcasting Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493380	Fundamentals of Radio	1			X	X	X	X
493390	Intermediate Radio	1				X	X	X

Television Production of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493420	Fundamentals of TV	1			X	X	X	X
493430	Intermediate TV	1				X	X	X

Graphic Communication Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
493600	Fundamentals of Graphic Communications	1			X	X	X	X
493610	Intermediate Graphic Communications	1				X	X	X

Photography Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494350	Fundamentals of Photography	1			X	X	X	X
494370	Intermediate Photography	1				X	X	X

Course Code	Media Communications Pathway Elective Courses	Units of Credit	7th	8th	9th	10th	11th	12th
590200	ACE Approved Concurrent Credit Communications	1			X	X	X	X
399270	ACE-Approved Arts A/V Exploration	0	X	X				
494130	Advanced Advertising and Graphic Design	1					X	X

Course Code	Media Communications Pathway Elective Courses	Units of Credit	7th	8th	9th	10th	11th	12th
493660	Advanced Audio/Video Tech & Film	1					X	X
493630	Advanced Graphic Communications	1					X	X
494380	Advanced Photography	1					X	X
493400	Advanced Radio	1					X	X
493440	Advanced TV	1					X	X
493720	Intro to Media Communications	1			X	X	X	X
415000	Journalism I (ADE)	1			X	X	X	X
415010	Journalism II (ADE)	1			X	X	X	X
493670	Media Communications Lab	1				X	X	X

Government & Public Administration Cluster

Executing governmental functions to include governance; national security; foreign service; planning; revenue and taxation; regulation; and management and administration at the local, state, and federal levels

National Security Pathway
JROTC Programs of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
	Air Force							
495760	Air Force JROTC I	1			X	X	X	X
495770	Air Force JROTC II	1				X	X	X
495780	Air Force JROTC III	1					X	X
495880	Air Force JROTC IV	1						X
	Army							
495790	Army JROTC I	1			X	X	X	X
495800	Army JROTC II	1				X	X	X
495810	Army JROTC III	1					X	X
495890	Army JROTC IV	1						X
	Marine							
495820	Marine JROTC I	1			X	X	X	X
495830	Marine JROTC II	1				X	X	X
495840	Marine JROTC III	1					X	X
495900	Marine JROTC IV	1						X
	Navy							
495850	Navy JROTC I	1			X	X	X	X
495860	Navy JROTC II	1				X	X	X
495870	Navy JROTC III	1					X	X
495910	Navy JROTC IV	1						X

Health Science Cluster

Planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development

Health Services Pathway
Medical Professions Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495300	Human Anatomy & Physiology	1				X	X	X
495340	Introduction to Medical Professions	.5			X	X	X	X
495330	Medical Procedures	.5			X	X	X	X

Sports Medicine Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494050	Foundations of Sports Medicine	1			X	X	X	X
494070	Sports Medicine Injury Assessment	1				X	X	X

Course Code	Health Sciences Pathway Elective Courses	Units of Credit	7th	8th	9th	10th	11th	12th
495370	Abnormal Psychology	.5			X	X	X	X
590260	ACE Approved Concurrent Credit Health Science				X	X	X	X
424030	Anatomy/Physiology (ADE)	1			X	X	X	X
495030	Biomedical Innovations (PLTW)	1			X	X	X	X
495600	Case Studies in Health Informatics (BUS)	.5					X	X
494140	First Responder	1			X	X	X	X
495320	Human Behavior & Disorders	.5			X	X	X	X
495010	Human Body Systems (PLTW)	1			X	X	X	X
495590	Introduction to Health Informatics	.5			X	X	X	X
495310	Medical Clinical Internship/Specialization	1					X	X
495230	Medical Clinical Internship/Specialization	.5					X	X
495020	Medical Interventions (PLTW)	1			X	X	X	X
495240	Medical Math	1					X	X
492690	Medical Office Management (BUS)	1				X	X	X
495390	Medical Procedures Expanded	.5			X	X	X	X
495380	Medical Professions Expanded	.5			X	X	X	X
495360	Medical Terminology	.5			X	X	X	X
493200	Nutrition and Wellness (FACS)	.5			X	X	X	X
495290	Pathology	.5			X	X	X	X
495280	Pharmacy Technology Fundamentals	1					X	X
495610	Professional Practice: Health Informatics Internship	.5					X	X

Law, Public Safety, Corrections & Security Cluster

Planning, managing, and providing judicial, legal, and protective services, including professional and technical support services in the fire protection and criminal justice systems

Law Enforcement Services Pathway
Criminal Justice Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494620	Introduction to Criminal Justice	1			X	X	X	X
494630	Foundations of Law Enforcement	1			X	X	X	X

Course Code	Law Enforcement Services Pathway Elective Courses	Units of Credit	7th	8th	9th	10th	11th	12th
590360	ACE Approved Concurrent Credit National Security	1			X	X	X	X
494600	Crime Scene Investigation	1			X	X	X	X
494610	Criminal Law	1			X	X	X	X
494140	First Responder	1			X	X	X	X

Architecture & Construction Cluster

Designing, planning, managing, building, and maintaining physical structures and the larger built environment, including roadways and bridges and industrial, commercial, and residential facilities and buildings

Construction Pathway
Construction Technology Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494480	Introductory Craft Skills	1			X	X	X	X
494460	Carpentry	1			X	X	X	X

Course Code	Construction Pathway Elective Courses	Units of Credit	7th	8th	9th	10th	11th	12th
590190	ACE Approved Construction Concurrent Credit	1			X	X	X	X
493840	Mechanical, Plumbing and Electrical	1			X	X	X	X
494860	Craft Woodworking Carpentry	1			X	X	X	X
494500	Architecture and Construction Lab	1			X	X	X	X

Manufacturing Cluster

Planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities, such as production planning and control, maintenance, and manufacturing/process engineering

Manufacturing Production Pathway
Advanced Manufacturing Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494940	Introduction to Manufacturing	1			X	X	X	X
494950	Design for Manufacturing	1			X	X	X	X

Mechatronics Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494480	Introductory Craft Skills	1			X	X	X	X
494800	Pre-Mechatronics	1				X	X	X

Precision Machining Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495200	Machine Tool I	1			X	X	X	X
495220	Machine Tool II	2				X	X	X

Maintenance, Installation & Repair Pathway
Industrial Equipment Maintenance Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
495150	Industrial Equipment Maintenance I	1			X	X	X	X
495170	Industrial Equipment Maintenance II	2				X	X	X

Welding Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494480	Introductory Craft Skills	1			X	X	X	X
495580	Shielded Metal Arc Welding	1			X	X	X	X

Course Code	Manufacturing Pathway Elective Courses	Units of Credit	7th	8th	9th	10th	11th	12th
590320	ACE Approved Concurrent Credit Advanced Manufacturing	1			X	X	X	X
495540	Advanced Shielded Metal Arc Welding					X	X	X
495450	Computer Integrated Manufacturing (PLTW)	1					X	X
495550	Gas Metal Arc Welding	1			X	X	X	X
495560	Gas Tungsten Arc Welding	1			X	X	X	X
494480	Introductory Craft Skills	1			X	X	X	X
495210	Machine Tool Lab	1			X	X	X	X
495160	Manufacturing Lab	1			X	X	X	X
494970	Manufacturing Power and Equipment Systems	1			X	X	X	X
494960	Manufacturing Production Process	1			X	X	X	X
494820	Pre-Mechatronics Intermediate	1					X	X
494810	Pre-Mechatronics Lab	1				X	X	X

Transportation, Distribution, and Logistics Cluster

Planning, managing, and moving of people, materials, and goods by road, pipeline, air, rail, and water and related professional and technical support services, such as transportation infrastructure planning and management, logistic services, and mobile equipment and facility maintenance

Mobile Equipment, Maintenance & Repair Pathway

Automotive Collision Repair Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494310	Painting & Refinishing	1			X	X	X	X
494300	Nonstructural Analysis/Repair	1			X	X	X	X

Automotive Service Technology Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494190	Electrical Systems/HVAC	1			X	X	X	X
494180	Brakes/Manual Drive Train	1			X	X	X	X

Aviation Technology Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494250	Aviation I	2			X	X	X	X
494260	Aviation II	2				X	X	X
590350	ACE Approved Concurrent Credit Aerospace and Aviation	1			X	X	X	X

Diesel Mechanics Program of Study

Course Code	Core Requirements	Units of Credit	7th	8th	9th	10th	11th	12th
494650	Diesel Brakes	1			X	X	X	X
494660	Diesel Electrical Systems	1				X	X	X

Course Code	Mobile Equipment, Maintenance & Repair Pathway Elective Courses	Units of Credit	7th	8th	9th	10th	11th	12th
590360	ACE Approved Concurrent Credit Transportation	1			X	X	X	X
494200	Engine Performance/ Engine Repair	1			X	X	X	X
494480	Introductory Craft Skills	1			X	X	X	X
494320	Structural Analysis/Damage Repair	1				X	X	X
494210	Suspension & Steering/Automatic Transmissions	1			X	X	X	X

ACE Approved Non-Program Specific Skilled and Technical Courses								
District must seek ACE prior approval before implementation								
Course Code	Course	Units of Credit	7th	8th	9th	10th	11th	12th
590110	ACE Approved Career & Technical Education	.5			X	X	X	X
590090	ACE Approved Skilled and Technical Sciences Course	1			X	X	X	X
590100	ACE Approved Skilled and Technical Sciences Lab	1			X	X	X	X

CLUSTER: ARCHITECTURE & CONSTRUCTION; ARTS, A/V TECHNOLOGY & COMMUNICATIONS; GOVERNMENT & PUBLIC ADMINISTRATION; HEALTH SCIENCE; LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY; MANUFACTURING (all pathways)

495370   Abnormal Psychology
Credit: 1   Grade Levels 9-12
This course provides a basic survey of maladaptive human behavior. Major psychological disorders, their causes, symptom behaviors, cultural influences, and relevant treatment approaches are discussed. Included topics are historical medical background, perspectives of treatment of the mentally ill, fundamental definitions, causes of anxiety disorders, disorders of mood including depression and bipolar disorder, personality disorders, disorders of thought including schizophrenia, substance-related disorders, and domestic violence. Legal, ethical, and social issues relating to the medical professional's role in treating psychological disorders are explored.

399270   ACE Approved Arts, Audio/Video Technology & Communications Exploration Course
Credit: Grade levels: 6-8
This one-semester class can include any course that will serve as a foundation for a program of study in the Arts A/V Technology and Communications Career Cluster. **ACE approval must be obtained before implementation.**

493870   ACE Approved Arts, Audio/Video Technology and Communications Elective Course
Credit: 1   Grade Levels: 9-12
This course is a related elective for Radio, TV, Film, Photography, Advertising & Graphic Design, Theatre and Graphic Communication Programs of Study in the AAVTC career cluster. **ACE approval must be obtained before implementation.**

494140   ACE Approved First Responder
Credit: 1   Grade Levels: 9-12
This course introduces students to emergency medical technician occupational skills. Prior approval must be obtained from the Skilled and Technical Sciences Office before this course is implemented.

494130   Advanced Advertising and Graphic Design (Scheduled to be removed in 2016)
Credit: 1   Grade Levels: 11-12
Advanced Advertising and Graphic Design takes the best, most important and relevant components of Advertising and Graphic Design Introduction and Intermediate courses, and expands them for the serious third year student. Each component is flexible and can be implemented throughout the school year, fulfilling the 120 credit hours of instruction. Each component is essentially intertwined with each other and may be implemented simultaneously.

493660   Advanced A/V Tech & Film (Scheduled to be removed in 2016)
Credit: 1   Grade Levels: 11-12
This independent production based program is designed to allow mastery of the knowledge and skills needed to begin a successful Audio/Video or Film career.

493630   Advanced Graphic Communications (Scheduled to be removed in 2016)
Credit: 1   Grade Levels: 11-12
Advanced digital imaging, as well as image assembly and construction, platemaking techniques, and finishing and binding are presented in this course. This course is directed at building advance-level skills and preparing for the workforce.

494380   Advanced Photography (Scheduled to be removed in 2016)
Credit: 1   Grade Levels: 11-12
This independent production based program is designed to provide the advanced photography student with knowledge and highly advanced skills for a comprehensive career in photography.

493400   Advanced Radio (Scheduled to be removed in 2016)
Credit: 1   Grade Levels: 11-12
This independent production based program is designed to allow mastery of the knowledge and skills needed to begin a successful radio broadcasting career.

495540   Advanced Shielded Metal Arc Welding
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to unite or separate metal parts by heating, using a variety of techniques and equipment. Emphasis of this course will be the use of shielded metal arc welders. This course is based on selected modules from Welding Level 1 NCCER curriculum.

493440   Advanced Television (Scheduled to be removed in 2016)
Credit: 1   Grade Levels: 11-12
This independent production-based program is designed to allow the student to master the knowledge and skills needed to begin a successful television career.

494860   Architecture and Construction Lab
Credit: 1   Grade Levels: 9-12

494250   Aviation I
Credit: 2   Grade Levels: 9-12
This program will include instruction on the general core curriculum required by the Federal Aviation Administration.

494260   Aviation II
Credit: 2   Grade Levels: 10-12
This program will include instruction on the general core curriculum required by the Federal Aviation Administration (FAA). This course will prepare students for the Air Frame and Power Plant School certified by the FAA.

494180   Brakes/Manual and Drive Train
Credit: 1   Grade Levels: 9-12
This course prepares individuals to engage in the diagnosis and repair of brakes. Instruction will include units on hydraulic system diagnosis and repair, drum brake diagnosis and repair, and disc brake diagnosis and repair.

494460   Carpentry
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to lay out, fabricate, erect, install, and repair wooden structures and fixtures, using hand and power tools. This course is based on the NCCER Carpentry Fundamentals 1 Curriculum.

494870   Creative Woodworking Carpentry
Credit: 2   Grade Levels: 10-12
Skills and techniques taught in this class will correlate more closely with manufacturing standards as determined by the furniture industry. Each student will assemble and finish a useful furniture piece as a required individual project

494600   Crime Scene Investigation
Credit: 1   Grade Levels: 9-12
This course provides students with an overview of the basics of crime scene investigations. Students will gain an understanding of the skills necessary to properly recognize, document, collect, process, and preserve evidence.

494610   Criminal Law
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to perform the duties of police and public security officers, including witness interviewing, evidence collection and management, and basic crime prevention methods.

494950   Design for Manufacturing
Credit: 1   Grade Levels: 10-12
This course is designed to expand on the introductory manufacturing course and expose the student to basic design concepts, computer skills, and drawing skills used in product and process design within the field of manufacturing. Additionally, the course is designed to expose students to a number of interpersonal skills and competencies necessary for a sustained career in manufacturing.

494650   Diesel Brakes
Credit: 2   Grade Levels: 9-12
This instructional program prepares individuals to diagnose and repair diesel equipment in on-road and off-road vehicles and machinery.

494660   Diesel Electrical Systems
Credit: 2   Grade Levels: 10-12
This instructional program prepares individuals to diagnose and repair diesel equipment in on-road and off-road vehicles and machinery. Advanced on-the-job training may be included.

494500   Electrical
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to install and repair residential electrical systems. This course is based on the NCCER Electrical 1 curriculum.

494190   Electrical Systems/HVAC
Credit: 1   Grade Levels: 9-12
This course prepares individuals to engage in the diagnosis and repair of electrical/electronic systems. Instruction will include units on general electrical system diagnosis and service HVAC.

494200   Engine Performance/Repair
Credit: 1   Grade Levels: 9-12
This course prepares individuals to engage in the diagnosis and repair of engine performance. Instruction will include units on general engine diagnosis and computerized engine controls diagnosis and repair.

494850   Finish Woodworking Carpentry
Credit: 1   Grade Levels: 9-12
This instructional program introduces basic principles of assembling and finishing and refinishing wooden structures.

494630   Foundations of Law Enforcement
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to perform the duties of police and public security officers, including patrol and investigative activities, traffic control, crowd control, and public relations.

494050   Foundations of Sports Medicine
Credit: 1   Grade Levels: 9-12
This course provides students with a general overview of sports medicine and its history from the perspective of the healthcare community that includes injury prevention, treatment, rehabilitation, psychosocial, and administration concerns. Students will gain an understanding of sports medicine and the role it plays in the athletic community.

494150   Fundamentals of Advertising and Graphic Design
Credit: 1   Grade Levels: 9-12
This instructional program in the applied visual arts is a core course and prepares individuals to use artistic techniques to effectively communicate ideas and information to business and consumer audiences via illustrations and other forms of printed media. Advertising and Graphic Design will use computer hardware and software multimedia to create two-three dimensional images for the purposes of visual communication in various media.

493640   Fundamentals of A/V Tech & Film
Credit: 1   Grade Levels: 9-12
Students in this core program will learn the basics of film and television production as well as other forms of audio-video communication such as animation, graphics, and sound production for video. They will also study the history of audio-video technology and film as well as career development and employment in this pathway.

493600   Fundamentals of Graphic Communications
Credit: 1   Grade Levels: 9-12
This course provides an overview of the printing industry, its basic operations, and career opportunities. Printing process has three stages—pre-press, press, and binding or post-press. This program employs processes to build understanding of print technologies from customer needs in sales and service to image retrieval, page assembly and typeset plate-making for printed products, finishing and distribution.

494350   Fundamentals of Photography
Credit: 1   Grade Levels: 9-12
This core instructional program prepares individuals to effectively communicate ideas and information to business and consumer audiences and record events and people via film, still or video photography. The Photography will use traditional film and/or digital photographic media to communicate thoughts, feelings, or ideas.

493380   Fundamentals of Radio
Credit: 1   Grade Levels: 9-12
This core program is designed to give practical knowledge in preparation for the pursuit of a career in broadcasting.

493420   Fundamentals of Television
Credit: 1   Grade Levels: 9-12
The core program is designed to give practical knowledge in preparation for the pursuit of a career in television.

495550   Gas Metal Arc Welding
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to unite or separate metal parts by heating, using a variety of techniques and equipment. Emphasis of this course will be the use of gas metal arc welders. This course is based on selected modules from NCCER Welding Level 1 and Welding Level 2 curriculum.

495560   Gas Tungsten Arc Welding
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to unite or separate metal parts by heating, using a variety of techniques and equipment. Emphasis of this course will be the use of gas tungsten arc welders. This course is based on selected modules from NCCER Welding Level 1 and Welding Level 2 curriculum.

495300   Human Anatomy and Physiology
Credit: 1   Grade Levels: 9-12
This course focuses on anatomical and physiological systems of the body as well as the diseases of those systems.

495320   Human Behavior and Disorders
Credit: .5 Grade Levels: 9-12
This course focuses on normal behavior and personality, abnormal behavior and personality, and behavior disorders and the therapies used to treat those disorders and abnormalities.

495150   Industrial Equipment Maintenance I
Credit: 1   Grade Levels: 9-12
The student will be trained to perform a variety of skills to repair, install, fabricate, set up, adjust, and do preventive maintenance to industrial machinery and equipment.

495170   Industrial Equipment Maintenance II
Credit: 2   Grade Levels: 10-12
The student will be trained to perform a variety of skills to repair, install, fabricate, set up, adjust, and do preventive maintenance to industrial machinery and equipment.

494170   Intermediate Advertising and Graphic Design
Credit: 1   Grade Levels: 10-12
This is a core course emphasizing the integration of computer skills and knowledge of software used in the marketplace.

493650   Intermediate A/V Tech & Film
Credit: 1   Grade Levels: 10-12
This core program is designed to develop high level technical skills in preparation for a career in Audio/Video and Film production.

493610   Intermediate Graphic Communications
Credit: 1   Grade Levels: 10-12
This course provides an overview of basic typography, layout design, desktop publishing, and operating. It requires production of visuals using electronic illustrations and text of the printing industry, its basic operations, and career opportunities.

494370   Intermediate Photography
Credit: 1   Grade Levels: 10-12
This core production based instructional program allows the photography student to implement artistic techniques to effectively communicate ideas and information to business and consumer audiences and record events and people via film, still or video photography.

493390   Intermediate Radio
Credit: 1   Grade Levels: 10-12
This core program is designed to develop high level technical skills in preparation for a career in radio broadcasting.

493430   Intermediate Television
Credit: 1   Grade Levels: 10-12
The core course will provide an understanding of production principles and experience with the video camera, lighting instruments and techniques, microphones, script creation, and editing. Students will perform assignments on camera as well as studio and control room duties.

494620   Introduction to Criminal Justice
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to perform the duties of police and public security officers, including patrol and investigative activities, traffic control, crowd control, and public relations.

494940   Introduction to Manufacturing
Credit: 1   Grade Levels: 10-12
This course is designed to introduce the student to the world of advanced manufacturing and establish a foundation upon which further studies in manufacturing might rest. Students will explore basic manufacturing materials and processes, tools, techniques, and produce some simple products.

493720   Introduction to Media Communications
Credit: 1   Grade Levels: 9-12
This is a foundation course for a pathway of study in the Arts, Audio-Video Technology, and Communications cluster. This course addresses the foundation skills required of all careers classified under the Arts AV Technology and Communications Cluster, including pathways in Audio-Video Technology and Film; Printing Technology; Visual Arts; and Journalism and Broadcasting. It can be used as an elective for any Arts A/V program of study.

495340   Introduction to Medical Professions
Credit: .5   Grade Levels: 9-12
This course provides a general overview of the many health-related occupations and the special concerns of the health care worker.

495380   Introduction to Medical Professions Expanded
Credit: .5   Grade Levels: 9-12
This course is designed as an extension of Introduction to Medical Professions. The course provides students with a general overview of the more crucial content areas of the health science technology education program core courses. Areas covered are medical terminology, medical math, human growth and development, processes of disease, and employability skills needed within the health care industry. This course is recommended for students who will not have the opportunity to take any additional health science technology education courses other than Introduction to Medical Professions.

494480   Introductory Craft Skills
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills in the building, inspecting, and maintaining of structures and related properties. This course is based on the NCCER Core Curriculum and should be considered a pre-requisite for all additional Architecture and Construction courses.

495200   Machine Tool I
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to shape parts on machines, such as lathes, grinders, drill presses, and milling machines from various materials. Programs may also train in the use of individual machine tools.

495220   Machine Tool II
Credit: 2   Grade Levels: 10-12
This instructional program prepares individuals to shape parts on machines, such as lathes, grinders, drill presses, and milling machines from various materials. Programs may also train in the use of individual machine tools.

495210   Machine Tool Lab
Credit: 1   Grade Levels: 9-12
This production-based program is designed to allow for the development of skills and knowledge needed to execute comprehensive machine tool technology.

495260   Manufacturing and Production Lab
Credit: 1   Grade Levels: 9-12
This production-based program is designed to allow for the development of skills and knowledge needed to execute comprehensive manufacturing processes.

494970   Manufacturing Power & Equipment Systems
Credit: 1   Grade Levels: 10-12
This course is designed to expand upon previous courses and allow students the opportunity to demonstrate knowledge of power systems and use the advanced tools of manufacturing production. Students will plan, design, implement, use, and troubleshoot manufacturing power systems, equipment systems, and control systems.

494960   Manufacturing Production Processes
Credit: 1   Grade Levels: 10-12
This course is designed to provide the student with a hands-on learning experience with the basic tools, equipment, and operations of manufacturing industries. The student will also understand the relationship between a manufacturing need, a design, materials, processes, as well as tools and equipment. During this course, the student will utilize many of the basic manufacturing processes to produce primary and secondary materials for manufacturing.

493840   Mechanical, Plumbing and Electrical
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to install and repair residential electrical systems. This course is based on the NCCER Electrical 1 Curriculum.

493670   Media Communications Lab
Credit: 1   Grade Levels: 10-12
This production-based program is designed to allow the audio/video student studio time for the development of skills needed to execute a comprehensive media career.

495230   Medical Clinical Internship/Specialization
Credit: .5   Grade Levels: 11-12
This is an educational program that offers Specialized Training in a health related field. It may also alternate in-school instruction and supervised on-the-job training activities in health science technology occupations.

495310   Medical Clinical Internship/Specialization
Credit: 1   Grade Levels: 11-12
This is an educational program that offers Specialized Training in a health related field. It may also alternate in-school instruction and supervised on-the-job training activities in health science technology occupations

495240   Medical Math
Credit: 1   Grade Levels: 9-12
This course is designed to increase students' ability to identify, solve, and apply mathematical principles involving temperature, weights, and measures used in the health care delivery system.

495330   Medical Procedures
Credit: .5   Grade Levels: 9-12
Medical Procedures is a one-unit course that helps students develop specific and general skills needed by the health science technology professional.

495390   Medical Procedures Expanded
Credit: .5   Grade Levels: 9-12
This course focuses on the specific skills needed in several different areas of health care. Students are able to build upon the skills gained in the Medical Procedures course. The different areas addressed are dental assisting, laboratory assisting, medical assisting, nurse assisting, physical therapy assisting, and veterinary assisting.

495360   Medical Terminology
Credit: .5   Grade Levels: 9-12
Medical Terminology is a one-semester course that assists students in developing the language used for communication in the health care profession.

495410   Mobile Equipment Maintenance and Repair Lab
Credit: 1   Grade Levels: 9-12
This course is an extension of an existing career and technical program of study – to allow students more time for hands-on application of the approved framework/curriculum. This course will not count in the 38 units required to be taught, but it will count in the six units for a career focus.

494300   Nonstructural Analysis/Repair
Credit: 1   Grade Levels: 9-12
This course concentrates on analysis and repair of the nonstructural components as they pertain to collision repair.

494310   Painting/Refinishing
Credit: 1   Grade Levels: 9-12
This course concentrates on painting and refinishing as they pertain to collision repair. The course includes causes and correction of finish defects.

495290   Pathology
Credit: .5   Grade Levels: 9-12
This course is devoted to the exploration of human pathology. Pathology is the branch of medical science that studies the causes, nature, and effects of diseases. This course of study begins with an introduction to pathology-related terms, predisposing factors of diseases, the relationship between diagnosis and prognosis, and disease treatments. Following the introduction, the course delves into a range of pathology-related topics and their relationships to specific systems of the human body. The topics include signs and symptoms of pathology, the effects of trauma, the effects of age, and characteristics of common diseases.

495280   Pharmacy Technology Fundamentals
Credit: 1   Grade Levels: 9-12
Provides an overview of the pharmacy technology field and develops the fundamental concepts and principles necessary for successful participation in the pharmacy field.

494800   Pre-Mechatronics
Credit: 1   Grade Levels: 9-12
Mechatronics is a new and rapidly growing field that integrates electronics, mechanics, pneumatics, hydraulics, and information technology and computer control systems into a single discipline that crosses most of the traditional boundaries of a skilled technician. Mechatronics is a broad understanding of how mechanical and electrical energy is produced, controlled and utilized.

494820   Pre-Mechatronics Intermediate
Credit: 1   Grade Levels: 10-12
The Mechatronics program is designed to teach a core set of technical skills that are applicable in a wide variety of settings.

494810   Pre-Mechatronics Lab
Credit: 1   Grade Levels: 9-12

484510   Plumbing
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to lay out, assemble, install, and maintain piping fixtures and piping systems, hot water, heating, cooling, and drainage systems. This course is based on the NCCER Pllumbing 1 curriculum.

JROTC (Junior Reserve Officer Training Corp)
The purpose of JROTC is to instill in students in secondary education institutions the values of citizenship, service to the United States, and personal responsibility and a sense of accomplishment.

495760   Air Force JROTC I
Credit: 1   Grade Levels: 9-12

495770   Air Force JROTC II
Credit: 1   Grade Levels: 10-12

495780   Air Force JROTC III
Credit: 1   Grade Levels: 11-12

495880   Air Force JROTC IV
Credit: 1   Grade Levels: 12

495790   Army JROTC I
Credit: 1   Grade Levels: 9-12

495800   Army JROTC II
Credit: 1   Grade Levels: 10-12

495810   Army JROTC III
Credit: 1   Grade Levels: 11-12

495890   Army JROTC IV
Credit: 1   Grade Levels: 12

495820   Marine JROTC I
Credit: 1   Grade Levels: 9-12

495830   Marine JROTC II
Credit: 1   Grade Levels: 10-12

495840   Marine JROTC III
Credit: 1   Grade Levels: 11-12

495900   Marine JROTC IV
Credit: 1   Grade Levels: 12

495850   Navy JROTC I
Credit: 1   Grade Levels: 9-12

495860   Navy JROTC II
Credit: 1   Grade Levels: 10-12

495870   Navy JROTC III
Credit: 1   Grade Levels: 11-12

495910   Navy JROTC IV
Credit: 1   Grade Levels: 12

495580   Shielded Metal Arc Welding
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to unite or separate metal parts by heating, using a variety of techniques and equipment. Emphasis of this course will be the use of shielded metal arc welders. This course is based on selected modules from the NCCER Welding Level 1 curriculum.

494070   Sports Medicine Injury Assessment
Credit: 1   Grade Levels: 9-12
This course provides students with the skills needed to evaluate sports related injuries. Students will gain an understanding of common injuries that affect athletes, injury assessment, and treatment.

494320   Structural Analysis/Repair
Credit: 1   Grade Levels: 10-12
This course concentrates on analysis and repair of the structural components as they pertain to collision repair.

494210   Suspension & Steering/Automatic Transmissions
Credit: 1   Grade Levels: 9-12
This course prepares individuals to engage in the diagnosis and repair of suspension and steering. Instruction will include units on steering systems diagnosis and repair; suspension systems diagnosis and repair; wheel alignment diagnosis, adjustment, and repair; and wheel and tire diagnosis and repair.

495570   Welding Technology
Credit: 1   Grade Levels: 9-12
This instructional program prepares individuals to apply technical knowledge and skills to unite or separate metal parts by heating, using a variety of techniques and equipment. This course is based on selected modules from the NCCER Welding Core, Welding Level 1, and Welding Level 2 curriculum.

SKILLED AND TECHNICAL SCIENCES EDUCATION

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

Cluster: Architecture & Construction
Pathway: Construction
Program of Study: Construction Technology

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Student Computer System	4	6	8	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Air acetylene torch	2	2	2	
Air compressor	1	1	1	Portable, 2 hp, 30 gal., 110 v
Air compressor	1	1	1	Stationary, 5 hp, 220 v, 60 gal.
Airless paint sprayer	1	1	1	1 pt. or 1 qt. capacity, 110 v
Airless paint sprayer	1	1	1	5 gal. capacity, 110 v
Amp & voltage recorder	2	2	2	Digital and analog
Ampmeter	1	1	1	Clamp on
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Body harness (fall protection) w/ lanyards	1	1	2	(Standard OSHA approved harness for working above ground)
Cutter Set, Knock-Out	1	1	1	
Drill bit set	1	1	1	Wood, 1/4"-1"
Drill press	1	1	1	15", 1/2", 1/2 hp, 110 v, single-phase
Drill, cordless	1	2	3	Electric, 3/8", w/charger, pistol grip, heavy-duty, 2-speed, forward & reverse
Drill, Electric	2	3	4	1/2" drive, variable speed, reversing
Drill, Electric	1	1	1	Right angle, 3/8" drive, variable speed, reversing
Dust Collection System	1	1	1	Point source or systemic
EMT Hand Bender	1	1	1	½" to ¾"
Eye Wash Station	1	1	1	
Grinder, bench	1	1	1	6", 1/3 hp, 110 v, single-phase, 2-wheel
Industrial Work Table	6	7	8	
Ladder, extension	1	1	1	12'/24', aluminum
Ladder, step	1	1	1	8', heavy-duty, aluminum
Ladder, step	2	2	2	6', heavy-duty, fiberglass
Nail gun, pneumatic	1	1	1	Box/common
Nail gun, pneumatic	1	2	3	Finish
Pipe Cutter	1	1	1	
Pipe Vise	1	1	1	
Pop-rivet gun	1	1	1	Manual or Pneumatic
PVC Saw	1	1	1	All purpose/ hand held
Router	1	2	3	1 1/2 hp, 22,000 rpm, 110 v
Sander, belt	1	2	3	3" x 21", 110 v

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Sander, belt/disk	1	1	1	Bench or pedestal type, 6" x 48" belt, 110 v
Sander, vibrating	2	4	6	Heavy-duty, 110 v
Saw, band	1	1	1	15", 3/4 hp,110/220 v, single-phase
Saw, circular	2	2	3	7 1/4"
Saw, compound miter	1	1	2	1 1/2 hp, 5,000 rpm, 110 v
Saw, panel or equivalent	1	1	1	Panel saw or equivalent guide table for table saw
Saw, saber	1	2	3	1" stroke, 110 v
Saw, scroll	1	1	1	15", 110 v
Scaffolding section	1	1	1	8' height, low level, steel mason's
Scaffolding section	2	2	2	Steel or aluminum, collapsing
Screw gun	2	2	2	Drywall type
Screwdriver, cordless	2	4	6	W/charger
Stapler, pneumatic	1	2	2	1 1/4"-1 1/2" and 1/4"-5/8"
Table Saw	1	2	2	10" heavy-duty, tilt arbor, 3 hp, 110/220 v, single-phase
Tap & die set	1	1	1	Standard & metric
Threader	1	1	1	Hand operated ½"
Threading tool	3	3	3	T-handle tap wrench Die and stock
Transit & tripod	1	1	1	Builder's or Laser
Welder, MIG	1	1	1	Portable, 90 amp, 115 v
Welder, portable	2	2	2	Oxyacetylene unit (complete welding outfit w/cutting torch attachments, bottles, & cylinder truck)
Mechanical, Plumbing and Electrical				
Charging cylinder	3	3	3	Heated
Charging meter	1	1	1	Electronic
Combustion testing kit	1	1	1	
Cooling unit	1	1	1	Window unit
Gauge Set, Refrigeration	3	3	3	
Hand Truck, Appliance	2	2	2	With tie strap
Heating/Cooling Unit	1	1	1	Furnace/condenser system
Heating/Cooling Unit	1	1	1	Heat pump system
Heating/Cooling Unit	1	1	1	Window unit
Hermetic Analyzer	2	2	2	
Hermetic Service Valve Kit	2	2	2	
Leak Detector	2	2	2	Electronic
Notcher	1	2	3	Hand (sheet metal cutter)
Pilot Tube	2	2	2	
Puller Sets	1	2	3	Bearing and Gear
Regulator, nitrogen	1	1	1	W/nitrogen bottle & cart
Tubing bender	3	4	5	Lever
Tubing swage punch	2	2	2	
Vacuum gauge w pump	2	2	2	Thermistor
Vacuum pump	2	2	2	2-stage, 20 micron

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Wrench, impact	2	2	2	Electric
Woodworking				
Biscuit joiner	1	1	1	Hand-held or table model, 110 v
Jointer	1	1	1	8", 3/4 hp, 110/220 v, single-phase
CNC Router	1	1	1	
Router, plastic laminate	2	2	2	110 v, trimmer
Shaper w/bit set	1	1	1	110/220 v, single-phase
Spray gun, airless	2	2	2	1 pt. or 1 qt. capacity, 110 v
Table, glue clamping	1	1	1	48" length
Router guide	1	1	1	For cabinet doors
Router, plastic laminate	1	1	1	Trimmer

Cluster: Arts, A/V Technology, and Communications
Pathway: Media Communications

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Student Computer System	5	7	10	Refer to current Technical and Professional Education Technology Standards
Digital Camera	1	1	1	5 mega pixel
Computer Printer	1	1	1	Photo quality, 1280 x 1064 resolution
Computer Scanner	1	1	1	Refer to current Technical and Professional Education Technology Standards
Television Production				
Headphones	6	8	10	Stereo
Video Recorder	1	1	1	Digital with monitor
Video Mixer	1	1	1	A/V Mixer, 4 video inputs, 2 source synchronization
Video Monitor	5	5	5	
Communication System	1	1	1	4 person intercom system
Studio Video Camera	3	3	3	3-CCD Video Camera Broadcast quality
Field Video Camcorder	3	4	5	Prosumer Camera with full manual features
Video Camera Tripod	3	3	3	Full size studio version, fluid head, with dolly
Video Camera Tripod	3	4	5	Field use video camcorders, fluid head
A/V Player/Recorder	1	2	2	Digital
Microphone	4	5	6	Studio Lavaliere, miniature, clip-on, 6' cable
Microphone	4	5	6	Omni-directional, dynamic, handheld
Microphone, Wireless	2	3	4	Field Lavaliere, VHF, microphone, wireless transmitter and receiver
Light Kit, Field	2	2	2	3 spot lights (300 watts), 3 light poles (8'), carry case

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Non-linear Editing System	3	4	5	Digital monitor, A/V Recorder and software
Non-linear editing system	2	2	2	Laptop units for field use, with software
Teleprompter System	1	1	1	Industry standard
Speakers	2	2	2	Audio monitors
Radio Broadcasting				
Audio Mixer	3	4	5	Minimum: 4 XLR inputs, 4 quarter inch inputs, 2 quarter inch audio outputs
Headphones	10	12	14	Stereo
Audio Recorder	3	4	5	Digital-USB
Audio Player	1	2	3	Digital
Microphone	6	6	6	Studio On-air broadcast quality with studio mounts
Microphone, Wireless	2	2	2	Handheld, VHF microphone, wireless transmitter and receiver
Audio Editing System	5	7	9	Digital with industry standard software
Audio editing system	2	2	2	Laptop units for field use
Cell phone interface	1	1	1	Industry standard
Speakers	2	2	2	Audio monitors
MP3 player/recorder	2	3	4	Digital
Audio monitors	6	8	10	Broadcast Quality
Public Address System	1	1	1	Portable, Mixer with 2 Speakers
Podcasting Station	2	3	4	Digital
USB Microphone	2	2	2	Laptop use
A/V Tech and Film				
Video Cameras	3	3	3	Broadcast Quality
Prosumer Camcorders	3	4	5	Full Manual features
Audio Mixer	2	2	2	Minimum: 4 XLR inputs, 4 quarter inch inputs
Video Mixer	1	1	1	A/V Mixer, non-linear, 4 S-Video or composite inputs
Video Monitor	2	2	2	
Headphones	6	8	10	Stereo
Video Camera Tripod	4	6	8	For studio/field use with video camcorders, fluid head, w/dolly
Microphone	4	5	6	Lavaliere, miniature, clip-on, 6' cable
Microphone	2	3	4	Omni-directional, dynamic, handheld
Microphone, Wireless	2	3	4	Lavaliere, VHF, microphone, wireless transmitter and receiver
Light Kit	1	1	1	3 spot lights (300 watts), 3 light poles (8'), carry case
Non-linear editing system	2	2	2	Laptop units for field use, with compatible software
Non-Linear Editing System	2	3	4	Self-contained, with monitor, DVD recorder, & A/V Editing Software

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
A/V Work Stations	2	3	4	60" x 30", desk height
Advertising and Graphic Design				
Large format scanner	1	1	1	
Large format printer	1	1	1	
Digital Camera	3	4	5	
Rotary trimmer	1	1	1	30" x 14"
Software: Creative, Animation, Word, Multi-Media, Web-design, etc.	15	20	25	Industry standard specifically related to commercial art program area
Digital Drawing Tablet	7	10	12	
Photography				
Digital Imaging Software	7	10	12	
SLR Digital Cameras	7	10	12	With accessories And camera bags
Matte Cutter	1	2	3	
Strobe Flash System	1	1	1	3-Strobe w/umbrellas
Wide Angle Zoom Lenses	7	10	12	
Tripods	2	3	4	
Graphic Communications				
Binding Machine	1	1	1	Plastic comb binder
Compressor, Air	1	1	1	2 HP
Computer Printer, Color	1	1	1	See Technical and Professional Education Technology Standards
Copier	1	1	1	See Technical and Professional Education Technology Standards
Cutter, Paper	1	1	1	24" hydraulic, to meet OSHA safety requirements
Drill, Punch	1	1	1	W/round cornering attachment
Folder, Paper	1	1	1	Electronic feed control, table top model, 4x6 to 12x24 capacity, automatic feed
Jogger, Paper	1	1	1	17" X 2"
Plate Maker	1	1	1	Flip-top, 17" X 22"
Press, Offset	2	3	4	11" X 17", two color, chain delivery, independent control water and ink, variable speed, register bar, double sheet detector, vacuum feed
Press, Padding	1	2	3	
Software, Publishing	4	4	4	
Stairs, Safety	1	1	1	40"H X 24"W, hand rails
Stapler, Floor Model	1	1	1	Single head 1/2" minimum capability side or saddle w/round or flatware
Stapler, Heavy Duty	1	1	1	25 sheets capacity
Stitcher,	1	1	1	Automatic, double head
Table, Light	4	6	8	36" X 26"
Table, Work	4	5	6	Plastic laminated top, 3' X 6'
Wrapping Machine, Shrink	1	1	1	

Cluster: Health Science
Pathway: Health Services Pathway
Program of Study: Medical Professions

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Student Computer	4	6	8	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
AED automated ext. defibrillator	1	1	1	Trainer w/voice & screen prompts/electrodes
Anatomical chart	1 set	1 set	1 set	Charts, markable, detailed illustration
Anatomical model set	1 set	1 set	1 set	
Ear	1	1	1	Enlarged 3 times, dissectible in 6 parts, unbreakable plastic
Eye	1	1	1	Enlarged 6 times, dissectible, unbreakable plastic
Teeth	1	1	1	Teeth & jaw, 4-part series, cross-section, unbreakable plastic
Skin	1	1	1	Enlarged 105 Times, cross-section, mounted
Heart	1	1	1	Realistic, palpable, dissectible, unbreakable plastic
Brain	1	1	1	Twice life size, mounted
Anatomical torso	1	1	1	Full sized, detachable parts, mounted, unbreakable plastic
Beds, hospital	2	2	2	Full spring, enameled steel, 6-button control, emergency crank, 80" x 35" mattress, spring-loaded adjustable side rails
Blood pressure cuff	5	10	15	Mercury, aluminum case, adult calibrated V-Lok inflation, 260 mm Hg scale
Cart, utility	1	2	3	Welded steel, ball bearing casters, rubber wheels, T-shelves, 1 drawer
Chart holders	2	4	4	Spring-loaded or 3-ring binder
Hospital linen set	3	6	10	w/bed sheets and spreads
Manikin, adult CPR	2	2	2	Full body, face removable, disposable airway, electronic monitor, print out, carry case, cleaning kit
Manikin, infant CPR	2	2	2	Removable face, airway, brachial pulse simulator, movable jaw, indicator (monitor)
Microscope	2	3	4	45 mm DIN objectives, 4x, 10x, 40" x 19", viewing tube mounted on rotating head, 20-watt illumination, oil immersion lens, low/high powered
Ophthalmoscope	1	1	1	Medium size handles, rechargeable batteries
Otoscope	1	1	1	Handle w/batteries, reusable specula
Walker	1	1	1	1" aluminum tubing, folding, adjustable, nonskid, rubber tips
Walking cane	1	1	1	Adjustable, 1" anodized aluminum, double locked, non-skid tip, cushioned handle
Crutches (standard)	1 pair	1 pair	1 pair	
Crutches (forearm)	1 pair	1 pair	1 pair	
Isolation kit	10	10	10	Disposable

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Scales, adult weight	1	2	2	Physician's balanced die cast beam, heavy-duty base & lower system
Scales, pediatric weight	1	2	2	Chrome-plated balance beam, enameled steel tray w/protective edges, 30-lb. capacity
Skeleton, deluxe model	1	1	1	Full sized, joints movable, heavy-duty plastic, dust cover
Vital signs instrument set	1 set	2 sets	3 sets	
Thermometer, electronic	8	10	13	Electronic, digital, visual & audio
Stethoscope, student	8	10	13	Dual-head chest piece
Blood pressure cuff	8	10	13	Calibrated V-Lok calibration & infiltration, cuff & bag
Stethoscope, teaching	1	1	1	Dual-head chest piece, double set of binaural
Wheelchair	1	2	2	Fixed arm rest, elevating leg rest, all steel, heavy-duty wheels

Cluster: Health Science
Pathway: Health Services
Program of Study: Sports Medicine

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Student Computer System	4	6	8	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Anatomical model-Torso non gender specific	1	1	1	Model with removable parts
Anatomical Model Set Muscled joints-knee, hip, elbow, shoulder	1	1	1	Muscled joint displays for 4 joints
Anatomical Model-adult skeleton-Mr. Super Skeleton with muscle and ligament display	1	1	1	Full size skeleton with depiction of muscles and ligaments
Anatomical model-articulating knee	1	1	1	Knee model depicts cartilage and ligaments
Automated external defibrillator trainer	1	1	1	AED for training purposes
Spine board	1	2	3	Board with Spider straps
Cervical Collar	1	1	1	Foam and Velcro
Thermal hydrocullator cover-all terry cloth	6	6	6	Terry cloth covers
Thermal hydrocover drying rack	1	1	1	Stainless steel rack of 6
Hydrocullator E-2 6 pack unit	1	1	1	6 slot hydrocullator with hose
Crutches, aluminum w/access 5'2-5'10	1	1	1	Adjustable Aluminum heights 5'2-5'10
Crutches, aluminum w/access 5'10-6'6	1	1	1	Adjustable Aluminum heights 5'10-6'6
Knee Immobilizers	3	5	7	Velcro an foam Straight leg brace
Manikin, adult CPR	1	1	1	Full body, removable face, disposable airway, electronic monitor, printout, cleaning kit, and carrying case

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Electronic Muscle Stimulation/Ultrasound Combo.	1	2	3	4 channel electrical muscle stimulation unit with Ultrasound
Ophthalmoscope	1	1	1	Professional diagnostic instrument with case. Chrome plated brass construction with pediatric and adult attachments
Orthoplast	2	3	5	24" x 36" perf. / 2 per case
Percussion hammers	8	10	12	Stainless steel handle with rubber tip.
Rebounder pac II	1	1	1	Trampoline with medicine ball pack
CPR manikin	5	5	5	Student practice manikin
Sam splint	3	4	5	4¼" x 36" aluminum strip, foam covered on both sides is easily trimmed if required. Weighs only 5½ oz., but when molded becomes rigid.
Sling, arm deluxe, large	2	2	2	Single strap with cotton binding on all edges, Adjustable slide buckle for proper height adjustment. Large
Sling, arm deluxe, medium	2	2	2	Single strap with cotton binding on all edges, Adjustable slide buckle for proper height adjustment. medium
Digital Psychrometer	1	1	1	
Snellen Eye Chart	1	1	1	Vision test
Skinfold calipers	1	1	1	Body fat percentage calculation tool
Sphygmomanometer with stethoscope and case.	8	10	12	Includes sphygmomanometer and stethoscope and care
Sphygmomanometer deluxe plus, lg. adult	1	1	1	Includes sphygmomanometer and stethoscope and care-lg adult
Stethoscope, Teaching	1	1	1	Two headed stethoscope
Exam stool	1	2	3	Basic swivel stool with wheels
Thera Tubing	1	1	1	6 x 50 yard in red, yellow, green
Thermometer-digital	8	10	12	Digital model thermometer
Face mask remover	1	1	1	
Treatment table with cubby	2	3	4	78in by 30in wide
Tuning Fork	8	10	12	
Vacuum Immobilizer kit-3splint	1	1	1	Splint kit
Ice therapy				Gel packs & Freezer or Ice machine
Exercise ball- 22" red	1	1	1	22", 26" and 30"
Balance Pad	1	1	1	PNF Rehabilitation tool

Cluster: Law, Public Safety, Corrections & Security
Pathway: Law Enforcement Services
Program of Study: Criminal Justice

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Student Computer System	4	6	8	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Belt, patrolman's	4	6	8	Nylon; including patrolman's flashlight, handcuffs, & red non-fiction plastic gun & carrier for each; carrier for walkie-talkie
Camcorder, digital	2	2	2	Still photo capability, digital zoom, time/date generator, (standard accessories – battery holder, battery, tripod base, microphone, viewfinder, carrying case)
Camcorder tripod	1	2	2	2'-5' collapsing, w/extension legs
Camera lens kit	1	1	1	Lens kit for digital camera, wide-angle & close-up lens attachments
Camera, digital	1	2	3	Resolution 3.0+ megapixels, computer interface or dock, 6x zoom, 8 Mb internal memory, rechargeable battery & charger
Casting kit	1	2	2	
Computer scanner	1	1	1	
Fingerprint kit	1	1	1	Master
Metal detector	1	1	1	Hand-held
Microscope	1	1	1	Computer interface, magnification 100x-300x,
Patrol car	1	1	1	Retired police cruiser or documented access to same
Photo editing software	4	6	8	Photoshop, Photo Editor, or equal; digital imaging & editing
Walkie-talkie	4	6	8	Police, channel selector, w/shoulder microphone
Criminal Justice CSI				
Superglue (CAE) fuming chamber				(Can buy components to build one as a project)
Field drug kits				NARC 2 Presumptive Drug Test Kit was recommended)
Blood Enhancement kit				(Luminol, Phenolphthalein, etc.)
Evidence Collection and Identification kit				(Evidence tape, paper bags, forceps, ALS, measuring tape and fingerprint equipment

Cluster: Manufacturing
Pathway: Maintenance, Installation & Repair
Program of Study: Industrial Equipment Maintenance

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/Specification
Student Computer System	1	2	3	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Air compressor	1	1	1	5 hp, w/80-gal. tank
Air regulators	2	2	2	Water and/or oil extractors

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/Specification
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
CAD / CAM software	1	2	3	AutoCAD / Revit or comparable
Dial indicator	1	1	1	
Drill press	1	2	3	Including attachments, 20" capacity
Drill, electric	2	3	4	3/8" reversible, variable speed
Drill, electric	2	3	4	1/2" reversible, variable speed
Exhaust system, smoke	1	1	1	
Eye Wash Station	1	1	1	
File set	1	2	3	Assorted
Grinder, bench	1	1	2	Dual wheel, 6"
Grinder, electric	1	2	3	Hand-held, 7"
Hydraulic system trainer	1	2	3	
Iron worker, hydraulic	1	1	1	50-ton, up to 1/2" x 10" cut
Jack, hydraulic	1	1	1	10-ton
Jack, hydraulic	2	2	2	5-ton
Lathe, bench	2	3	4	12" minimum length, w/attachments
Level, precision	1	1	1	
Mandrel set	1	2	3	Lathe
Milling machine, vertical	1	2	3	Including attachments
Multimeter	2	3	4	Digital
Band saw	1	1	1	Horizontal, metal, 7" capacity
Band saw	1	1	1	Vertical, metal, 20" capacity
Circular saw	1	1	1	7 1/4"
Table saw	1	1	1	10", 1 1/2 hp
Square, machinist	1	2	3	Combination w/attachment set
Surface plate	1	1	1	
Tables, work	5	6	7	Steel (Same as welding needs)
Tap & die	1 set	1 set	1 set	Standard & metric,1/2"-1 1/2"
Welder	2	2	2	AC/DC arc, 200-300 amp
Welder, multi process	1	1	1	200 amp
Welder, oxyacetylene	1	1	1	

Cluster: Manufacturing
Pathway: Manufacturing Production
Program of Study: Precision Machining Technology

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/Specification
Student Computer System	1	2	3	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Air compressor	1	1	1	115 v, 3 hp, 60-gal. tank
Air regulators	1	1	1	Water & oil separator

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/Specification
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Arbor press	1	1	1	Hydraulic, 50-ton
CAD / CAM software	1	2	3	AutoCAD / Revit or comparable
Collet sets	3	4	5	1/4"-1"
Dial caliper	2	3	4	6"
Digital readout	2	3	4	For vertical milling machine
Drill press, bench	1	1	2	8", variable speed, 1/3 hp, w/attachments
Drill press, floor	1	1	2	20", variable speed, 1 1/2 hp, w/attachments
Drill, electric	1	2	3	1/2" drive, reversible, variable speed
Drill, electric	1	2	3	3/8" drive reversible, variable speed
End mill sets	3	3	3	1/4-1"
Eye Wash Station	1	1	1	
Gauge set, radius	1	1	1	
Gauge, height	1	1	1	
Grinder	1	1	1	Surface, 220 v, 1 hp, 6" x 18", magnetic chuck, automatic feed, w/attachments
Grinder, bench	1	1	1	7", 115 v, 1/2 hp
Grinder, carbide	1	1	1	115 v, 1/2 hp
Grinder, electric	1	2	3	7", hand-held
Grinder, pedestal/bench	1	1	1	10", 1 hp
Grinder, tool & cutter	1	1	1	1/2 hp
Grinder, tool post	1	1	1	115 v, 1/4 hp
Hardness tester	1	1	1	
Indexing head	1	1	1	For vertical milling machine
Lathe, bench	1	1	1	1 1/2 hp, 9" x 20" w/attachments
Lathe, gap bed	1	1	1	1 1/2 hp, 9" x 20" w/attachments
Mandrels set	3	4	5	Lathe
Micrometer	2	3	4	1"-2"
Micrometer	2	3	4	2"-3"
Micrometer	1	2	3	3"-4"
Micrometer	1	2	3	Digital, 0-1", .0001" accuracy
Milling machine, vertical	1	1	1	9" x 42", variable speed, 3 axis, 3 hp power feed, w/attachments
Parallel set	2	3	4	For vertical milling machine
Reamer set	1	2	3	
Rotary table	1	1	1	For vertical milling machine
Sander	1	2	3	Belt & disk, 6" belt, 12" disk, 1 1/2 hp
Saw, band	1	1	1	Horizontal, 1/2 hp, 1" blade capacity, 3-speed, coolant system
Saw, band	1	1	1	Vertical, 2 hp, variable speed, w/blade welder
Surface plate	1	1	1	20" x 30", granite
Tap & die set	1	1	1	Standard ¼"-1/2" & 3 mm-12 mm

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/Specification
Vise	2	2	2	Drill press, angle adjustable
Vise	6	7	8	Machinist, 4"
CNC Mill/ Lathe Controllers				Haas or equivalent

Cluster: Manufacturing
Pathway: Maintenance, Installation & Repair
Program of Study: Welding

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Student Computer System	4	6	8	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Air compressor	1	1	1	5 hp, 80-gal. tank
Air compressor	2	2	2	Portable, 3 hp, 20-gal. tank
Air regulators	2	2	2	Including water and/or oil extractors
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Band saw, horizontal	1	1	1	Metal, 7" capacity minimum, 1 hp
Band saw, vertical	1	1	1	Metal, 14" capacity minimum, 1 hp
Cutting machine	1	1	1	Traveling, track type, oxyacetylene
Drill press	1	1	1	Including attachments, 15"
Drills, electric	1	2	3	1/2" drive, variable speed, reversible; and 3/8" drive, variable speed, reversible
Exhaust system	1	1	1	Suitable for exhausting welding gases…Point source or meets OSHA requirements
Eye Wash Station	1	1	1	
Grinder	2	3	4	Bench or pedestal, 10", 1 hp
Grinder	1	1	1	Bench, 6", dual-wheel
Grinder	1	1	2	Electric, hand-held, 7"
Guide bend tester	1	1	1	
Hoist	1	1	1	1-ton, hand, chain or electric
Jack, floor	1	1	1	2-ton, hydraulic
Oven, electrode	1	1	1	
Puller set	1	1	1	Bearing, wheel, & gear
Quenching tank	1	1	1	
Saw, cut-off	1	1	1	Abrasive, 10", 1 hp
Shear	1	1	1	Squaring, 32"
Tap & die set	1	1	1	Standard & metric to ½"
Welder, arc	10	12	12	200-300 amp, w/attachments
Welder, Multi Process	3	3	3	200-300 amp, w/attachments
Welder, portable	2	2	2	Oxyacetylene welding unit (complete w/cutting torch, bottles, attachments, & cylinder truck)
Welding booths	10	12	12	For arc welding, 60" W x 96"H w/16" deep work surface

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Welding stations, oxyacetylene	6	6	6	Including 2-stage regulators

Cluster: Transportation, Distribution, and Logistics
Pathway: Mobile Equipment, Maintenance & Repair

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Student Computer System	4	6	8	See ACE Technology Standards
Student Printer	1	1	1	See ACE Technology Standards
Vehicle service information system	1	1	1	Online service preferred
Program of Study: Automotive Collision				
NATEF TOOL LIST Go to www.natef.org for the latest tool list.				
Program of Study: Automotive Service Technology				
NATEF TOOL LIST Go to www.natef.org for the latest tool list in Maintenance & Light Repair				

Cluster: Transportation, Distribution, and Logistics
Pathway: Mobile Equipment, Maintenance & Repair
Program of Study: Aviation

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Aerodynamics demonstrator	1	1	1	
Aircraft	1	1	1	Aircraft w/taxi capability (or unlimited access)
Airframe mockup	1	1	1	
Approved metal storage cabinet for flammable, caustic, and/or toxic materials	1	1	1	OSHA Approved
Battery charging system	1	1	1	Aircraft
Battery, aircraft	4	4	4	
Drawing table	1	2	3	
Drill bit set, aircraft	1	1	1	Aircraft length, 135° split pt., 1/8"-1/2"
Electrical circuit trainer	1	1	1	
Eye Wash Station	1	1	1	
Mandrel set, tubing	1	2	3	
Multimeter	5	7	10	Digital
Parallel bar	1	2	3	
Pump, test	1	1	1	
Scale	1	1	1	Including adapters & weights
Socket set, deep	1	1	1	Inches, ½" drive, ½"-15/16"
Socket set, shallow	1	2	3	Inches, ½" drive, ½"-15/16"
Socket set, shallow	1	2	3	Metric, ½" drive, 8 mm-20 mm

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Student Computer System	4	5	6	See ACE Technology Standards
Student Printer	1	1	1	
Tool set, aircraft machine	1	1	1	
Tool set, flaring	1	1	1	
Tug, aircraft	1	1	1	Aircraft towing vehicle
Vacuum/pressure pump	1	1	1	
Wrench set, aircraft box	1	2	3	Metric, 0° offset, 12 pt., 6 mm-24 mm
Wrench set, aircraft box	1	2	3	Inches, 15° offset, 12 pt., ¼"-7/8"
Wrench set, aircraft box	1	2	3	Metric, 15° offset, 12 pt., 8 mm-20 mm

Operational Guide for
Special Populations

SPECIAL POPULATIONS – SPECIAL NEEDS STUDENTS

Definitions and policies related to serving students who are members of "special populations" (special needs) must be in compliance with the Carl D. Perkins Vocational and Technical Education Act of 1998 (Public Law 105.332) or its successor.

The term "special populations" includes individuals with disabilities, educationally and economically disadvantaged individuals (including foster children), individuals of limited English proficiency, individuals who participate in programs designed to eliminate sex bias, and individuals in correctional institutions.

Each student identified as disabled and/or handicapped under the guidelines of the Special Education Section of ADE and admitted to career and technical education program(s) must have an Individualized Education Plan (IEP) developed prior to placement in the program.

Each student who meets the criteria for identification as a member of special populations shall be provided with the vocational assessment, guidance, counseling, and career development in order to ensure his/her success in the career focus program of study.

Transition services as well as supplemental/support services shall be provided as needed to assist the student in making the transition from school to employment.

JOBS FOR ARKANSAS' GRADUATES (JAG)

Program Description

　　JAG is a broad based School-to-Work program designed to assist students whose ability to successfully graduate from high school and obtain meaningful employment is in jeopardy. The program's goal is to ensure student's graduation (or GED) and prepare students for workplace success whether their career begins immediately upon high school graduation or requires them to complete postsecondary education/training.

Course Description

　　JAG can be utilized in any program of study and can count as credit toward a student's vocational career focus/major. The program's goal is to ensure student graduation (or GED) and prepare students for workplace success whether their career begins immediately upon high school graduation, includes entry into military service, or requires them to complete postsecondary education/training.

Course Content

　　The course will consist of the following areas:

1. Career Development Skills
2. Job Attainment Skills
3. Job Survival Skills
4. Basic Skills
5. Leadership and Self-development Skills
6. Life Survival Skills
7. Workplace Skills

　　The model requires the completion of the 37 core competencies. The curriculum contains a total of 87 competencies. Arkansas requires the completion of 40 (including core) competencies for School-to-Career (senior only) participants and 50 (including core) competencies for Dropout Prevention (multiyear) participants.

Required Instructional Methods:

1. Hands-on Activities (minimum of one activity per unit)
2. Audio-Visual Aids
3. Resource Speakers
4. Field Trips
5. Lectures
6. Occupational Research (including the Arkansas Occupational and Educational Information System – AOEIS)

Background Information

JAG is a nonprofit corporation established to promote business interaction in schools. It was initiated as a "pull out" program utilizing business people as specialists (instructors). JAG was established 20 years ago in Delaware and has been established in 27 states.

The model has 10 components, which must be maintained by the state affiliate. The components are:
- Oversight Board
- Program Management
- Program Staff
- Participant Selection
- Student Load
- Career Association
- Competency Attainment
- Employer Marketing and Job Development
- Follow-up Services
- National Database Participation

The model has three program applications or ways to utilize it:
- School-to-Career (senior only) (12th-grade students only)
- Dropout Prevention (multi-year)
- Dropout Recovery

There are five primary performance goals of the School-to-Career and Dropout Prevention Applications:
- 90% graduation/GED rate;
- 80% overall success rate at the end of 12 months after graduation, with participants either employed in a job leading to a career, in the military, or enrolled in a postsecondary education or training, or a combination of work and postsecondary education;
- 60% of graduates are employed;
- 60% of employed graduates are in full-time jobs leading to careers; and
- 80% of the graduates are employed full-time or are combining work and school. These goals are to be achieved by the third year of operation.

Arkansas high schools and alternative schools wishing to implement JAG may apply for ACE New Program Start-up funds to operate the School-to-Career application or the Dropout Prevention application for 11-12th grades (senior only).

Teacher Qualifications

The specialist is to be secondary certified in a vocational or any core academic area and endorsed through the completion of program management training developed and approved by the Department of Career Education. Training includes New Specialist Training (one to two days) and National Data Management System training (one day).

Contract Length

It is strongly recommended that, during the first year of operation, the specialist be employed on a contract of a minimum of 215 days. It also is strongly recommended that during each subsequent year, the specialist be employed on a contract of a minimum of 225 days.

The model requires 12 months of follow-up after graduation, which means monthly contact with participant beginning the month of June following graduation and at least six contacts with the participant's employer/school/military recruiter.

Professional Development Activities

Teachers are encouraged to participate in all in-service training workshops, quarterly meetings, National Training Seminar, and the following professional organizations:

Association of Career of Career & Technical Educators (Special Needs Division)
National Association of Vocational Education Special Needs Personnel
Arkansas Association of Vocational Education Special Needs Personnel

Funding

The Arkansas Workforce Investment Board (WIB) endorses the JAG program. A few local WIBs have provided supplemental funding for JAG programs.

New program start-up equipment funds are available. Supplemental funding through local Workforce Investment Youth Councils may be utilized.

Class Grade Level & Length

JAG is designed as a School-to-Career Application or as Dropout Prevention Application (11–12th grade) program.

Eleventh -or Twelfth-grade career and technical students with two or more identified barriers shall apply for acceptance to the program. The specialist identifies a student's barriers prior to placement into the program. Students are to have an identified career and technical focus/major and have completed at least one unit and be enrolled in a second unit of the identified career focus/major. Alternative schools that do not offer or have access to career and technical education must request a waiver.

The model requires 35-45 students be the maximum in the in-school phase.   Programs in alternative schools can request a waiver to lower the student load. Arkansas JAG recommends that the specialist be provided one period for Employer Marketing and Job Development for every 25 in-school participants.

Class periods shall conform to the minimum class hours established by the Standards for Accreditation of Public Schools and North Central Association (NCA)

(NCA: 120hours = 1 unit; 60 hours = ½ unit)

One unit of credit per year is to be given for JAG participants. A student's maximum length of enrollment in the program shall be two years, depending on the application of the model. JAG may be utilized as a related option of any program of study. It is not a stand-alone program of study or career focus/major.

Part-time employment is not a requirement of the JAG program, but credit can be given at the discretion of the individual school district. Schools that grant credit for work-based learning shall follow the course credit guidelines for the Workforce Education Internship program.

Class Size

"*Standards of Accreditation", Arkansas Public Schools* states: "in grades seven through twelve, a teacher shall not be assigned more than one hundred fifty (150) students daily and an individual class shall not exceed thirty (30) students, provided that, in exceptional cases or for courses that lend themselves to large group instruction, these ratios may be increased." (JAG is not an exceptional case). Large JAG classes have proven to be less practical and effective because they place limitations on the types and quality of hands-on, individualized, or other class activities.

Advisory Committee

Sites are to develop a local advisory board with representatives of groups such as: educational providers (e.g., adult education, GED instructors, community college representatives, School-to-Work partnerships), community agencies (e.g., homeless shelters, mental health services, workforce development, and juvenile officers), and school personnel.

The selection committee, a subcommittee of the local advisory board, shall be local and accept responsibility for program participants targeted for services. The selection committee shall be comprised of selected representatives of the local school system (e.g., high school administrators, counselors, vocational faculty, and academic faculty).

Student Organization

Alternative schools must operate a local career association if they are a stand-alone facility.

While National Jobs for America's Graduates' (JAG) asks that elements of their career association (National Career Association) be included in the curriculum, specialists will provide support to the students and advisors in the student's career focus career and technical student organization. JAG students are strongly encouraged to hold membership in the student organization that represents their chosen career focus/major area. The specialists will assist the JAG students in the activities of their chosen CTSO. NCA or "club-like" activities can be utilized as a classroom management tool.

Courses Offered

Course Code	Electives	Units of Credit	7th	8th	9th	10th	11th	12th
493800	JAG Apprenticeship/Work-Based Learning	1			X	X	X	X
399290	JAG Middle School		X	X				
493780	JAG I	1			X	X	X	X
493790	JAG II	1			X	X	X	X

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE

Item Name	Count 15 Students	Count 20 Students	Count 25 Students	Description/ Specification
Student Computer System	15	20	25	See ACE Technology Standards – Level 1
Laptop /Notebook	1	1	1	See ACE Technology Standards
Color Printer for classroom	1	1	1	
Telephone/FAX/answer machine & jack for office	1	1	1	Newest technology
Photocopier, video camera				Easy access to
TV/ /DVD player/recorder	1	1	1	Minimum 25" monitor; 3-speed recording/playback
Scanner	1	1	1	Newest technology
8' x 10' screen				Access to

Supplemental Instructional Materials and Suppliers

Classroom set of any of the following:

Succeeding in the World of Work – Revised
  Glencoe Division of MacMillan/McGraw-Hill
  P.O. Box 508
  Columbus, OH 43216
  1-800-828-5096

From School to Work – Revised
  Goodheart-Wilcox Publisher
  18604 W. Creek Dr.
  Tinley Park, IL 60477-6243
  1-800-323-0440

Workmatters – Revised
  Contemporary Books
  4255 W. Touhy Ave.
  Lincolnwood, IL 60646-1975
  1-800-323-4900

Dynamics of Work – Revised
  South-Western Educational Publishing
  5101 Madison Road
  Cincinnati, OH 45227-1490
  1-800-354-9706

Students and Teachers Responsibly Integrating Vocational Education (STRIVE)

STRIVE is a secondary course that integrates academics with a student's selected career and technical education course of study. This course provides a versatile spectrum of instruction with the intent of improving the knowledge and skills of both vocational and academic competencies. Student eligibility is based on an application process and is to be discussed with the student, parents, STRIVE instructor, and/or counselor prior to enrollment.

Course Type

STRIVE is a recommended course for students in the ninth and/or tenth grades in secondary schools who have identified barriers. Instruction will include integrated areas of career and technical education and academic skills. The instruction shall be related to the vocational program of study/career focus in which the student is or will be enrolled. The administration of a pre- and post-assessment tool (TABE) is required of all students. Documentation of student achievement is required.

Length of Course

STRIVE is recommended as a one-year course.

Eligibility of Students

Ninth- and tenth-grade career and technical students or potential career and technical students with multiple identified barriers shall apply for acceptance to the STRIVE course. The instructor identifies a student's barriers prior to placement into the course. This ninth- or tenth-grade student is or will be enrolled in a vocational program or study/career focus. Student eligibility shall be discussed with the student, parents, STRIVE instructor, and/or counselor prior to enrollment.

Course Credits

It is recommended that a student may earn the equivalent of one unit of credit per year for the successful completion of the STRIVE course. This course will not count as a credit toward a student's career focus major.

Course Code	Electives	Units of Credit	7th	8th	9th	10th	11th	12th
690030	STRIVE	1					X	X

SUPPORT FOR SPECIAL POPULATIONS
STRIVE

MINIMUM INSTRUCTIONAL EQUIPMENT AND SOFTWARE
(15, 20, or 25 students)

Item Name	Count	Specification/Description
Computers	1 per student	See ACE Technology Standards – Level I
Color Printer	1	Newest Technology
Laptop /Notebook	1	See ACE Technology Standards
Data stations	1 per computer	Minimum of 30" x 42" per station (keyboard height 26"-28")
Computer chairs	1 per computer	Strong, durable, ergonomically designed w/strong back support (25 percent must be adjustable)
Multipurpose tables	2	24" x 28", sturdy, wood
Photocopier, video camera		Easy access to
TV/ DVD Player	1	Minimum 25" monitor, 3-speed recording/playback
Presentation Equipment	1	LCD Projector (Mounting recommended) Teacher Laptop (See ACE Technology Standards) Computerized Presentation Board
Filing cabinets	1	4-drawer, lockable
TABE software	1 (Contact Office of Special Population for updated information)	For appropriate TABE test administration/interpretation
Optical mark reader	1 (Contact Office of Special Population for updated information)	48 x 108 marks; 2,200 forms/hour; reflective read; 2 read heads; 40-48 read head channels; 512 KB memory; RS-232C serial interface; built-in form translation software
TABE test booklets	(Contact Office of Special Population for updated information)	Version 9/10 Locater & Survey Tests

Adaptive Equipment

Adaptive Equipment for Individuals with Disabilities Enrolled in Funded Vocational Education Programs can be obtained through Appropriation 681, by:

1. The requesting school must enter the student in the CIR/CUIT system. This may be done online at http://arksped.k12.ar.us/sections/CIRCUIT.html -- the Arkansas Department of Education's intake and referral system. The student will be assigned a special education consultant to assist with ordering the adaptive equipment.
2. The superintendent or school principal in which the student is enrolled may then request services through contacting: Program Manager, Office of Special Populations, ACE, Three Capitol Mall, Little Rock, Arkansas 72201. Assistance in submitting requests may be obtained by calling 501-682-1535.
3. The **written** request for services **MUST** contain the following information:
   a. Name of student
   b. Age of student
   c. Disability and need for adaptive equipment
   d. Vocational program(s) and grade in which the student is enrolled
   e. Equipment requested (if known)
   f. Assistance in identifying appropriate equipment (if known)
   g. Appropriate cost of equipment (if known)
   h. The written evaluation and recommendation of the Special Education Consultant

4. Upon receipt of the **written** request for adaptive equipment, the Office of Special Populations may place a follow-up telephone call to the school for specific information. At that time a letter of approval (or disapproval) will be sent to the school listing the approved equipment along with approximate funds available for purchase. (If the Office of Special Populations locates existing appropriate equipment, this equipment may be provided in lieu of funding.)
5. **All adaptive equipment will be purchased through the Educational Cooperative.** The Office of Special Populations will reimburse the Co-op upon receipt of the expenditure report (WE-10). The reimbursement will not exceed the allocation approved for the equipment.
6. The adaptive equipment remains the property of the Office of Special Populations of the ACE. It is subject to redistribution when no longer required by the student or similarly disabled student enrolled in funded vocational education programs within the school district or Cooperative.
7. A list of existing adaptive equipment can be obtained through our web site. Existing equipment may be transferred between school districts after following steps 1-3 and written approval from the Office of Special Populations has been provided. An Adaptive Equipment Transfer Form (WE-SN-254) must be submitted by the school district requesting the transfer within 15 days of the physical transfer of the equipment.

Special Populations

493800   JAG Apprenticeship/Work-Based Learning
Credit: 1   Grade Levels: 9-12
This is an instructor-supervised work release course that includes monthly employer evaluations of participants. Employment is not a requirement of the JAG program, but credit can be given at the discretion of the individual school district. Participants should be expected to complete 180 hours of work-based learning in order to receive one credit—with a maximum of four credits for completing 720 hours of work study within a consecutive two-year period.

399290 JAG Middle/ ALE
Credit: 0   (JAG Middle 7th - 8th)
Credit: 1   (JAG ALE 9 -12)
Middle School Program serves seventh and eighth grade students. Students are identified by middle school staff as being at risk of not reaching their potential or leaving school prematurely. ALE School Program serves grades seventh through twelfth. The program is design to serve students in alternative learning environments.
NOTE: (See Traditional JAG Course Codes for JAG 9-12 ALE Programs)

493780   JAG Multi-Year I
Credit: 1   Grade Levels: 9-12
JAG utilizes the National Jobs for America's Graduates model. It is designed to assist career and technical students whose ability to successfully graduate from high school and obtain meaningful employment is in jeopardy.

493790   JAG Multi-Year II
Credit: 1   Grade Levels: 9-12
JAG utilizes the National Jobs for America's Graduates model. It is designed to assist career and technical students whose ability to successfully graduate from high school and obtain meaningful employment is in jeopardy.

493770   JAG Senior Applications
Credit: 1   Grade Levels: 12
JAG utilizes the National Jobs for America's Graduates model. It is designed to assist career and technical students whose ability to successfully graduate from high school and obtain meaningful employment is in jeopardy.

690030   STRIVE
Credit: 1   Grade Levels: 9-10
This secondary program is individualized to meet the specific academic needs of career and technical students who are members of a special population. This program provides a versatile spectrum of instruction with the intent of improving vocational and academic scores and/or skills. Student eligibility is to be discussed with the student, parents, STRIVE instructor, and/or counselor prior to enrollment.